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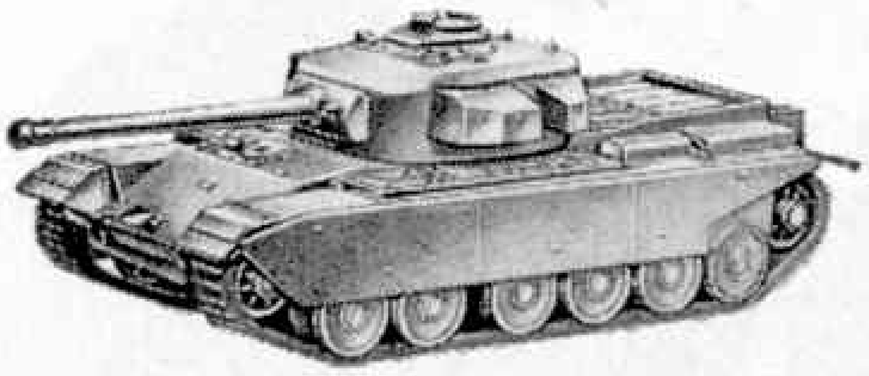

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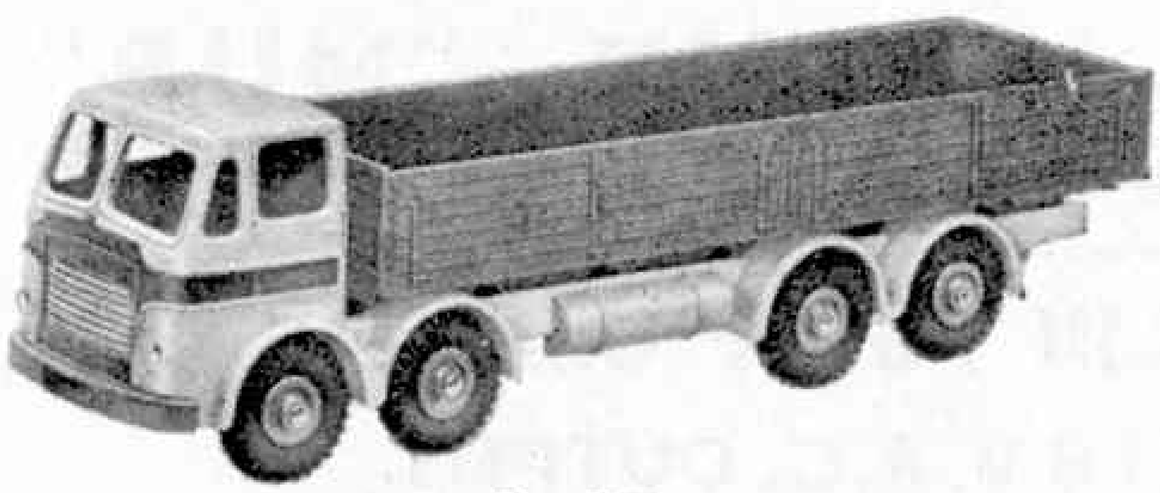

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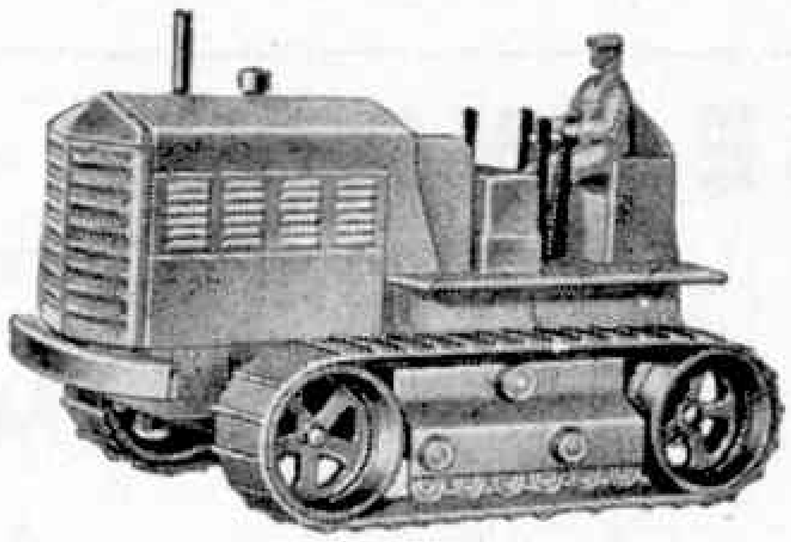

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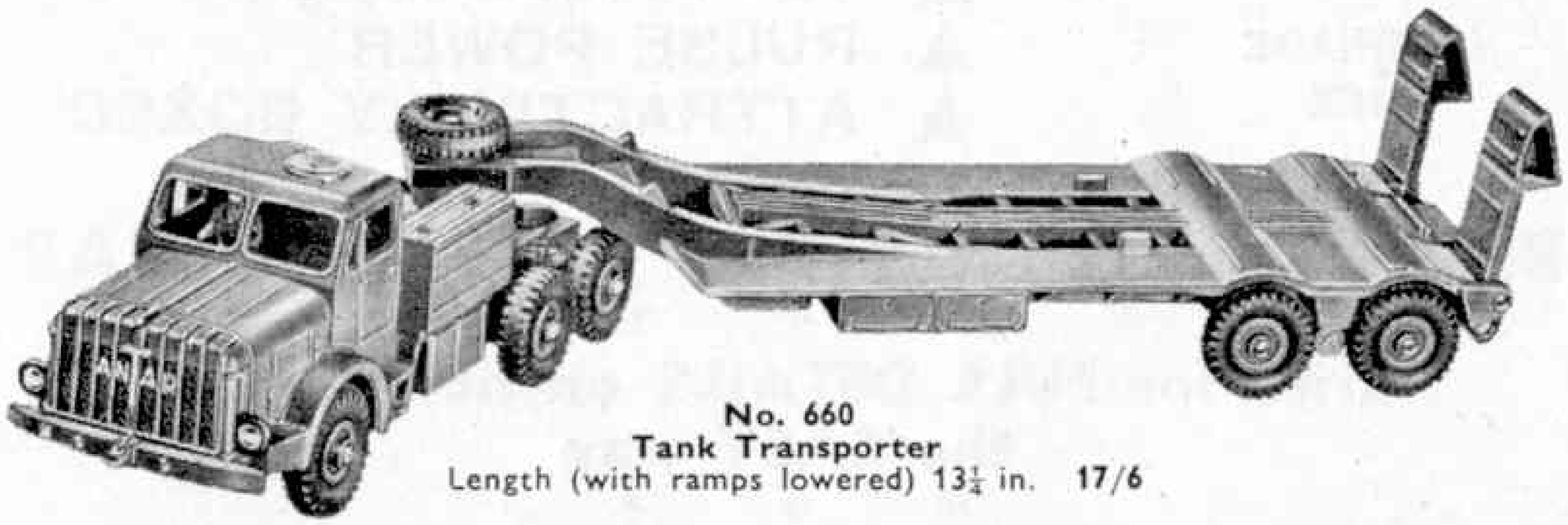

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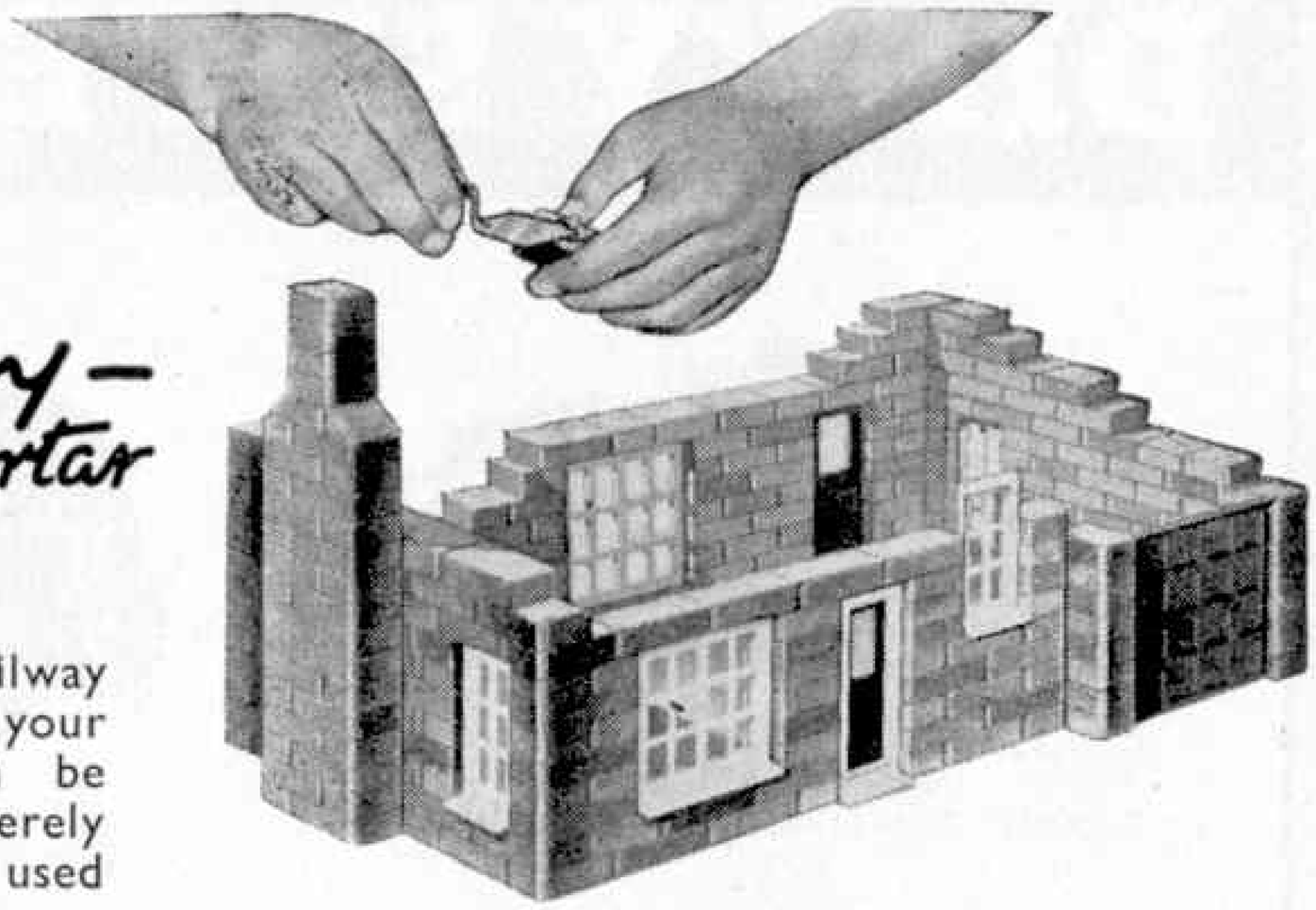

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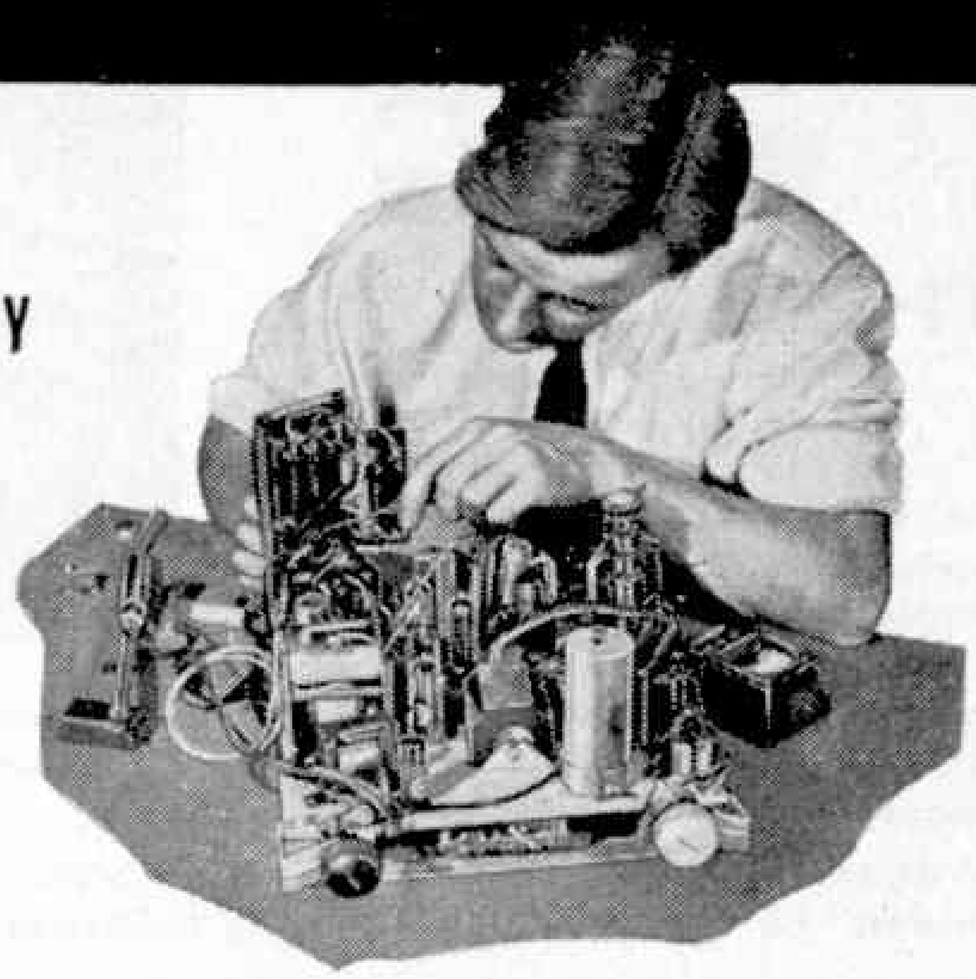

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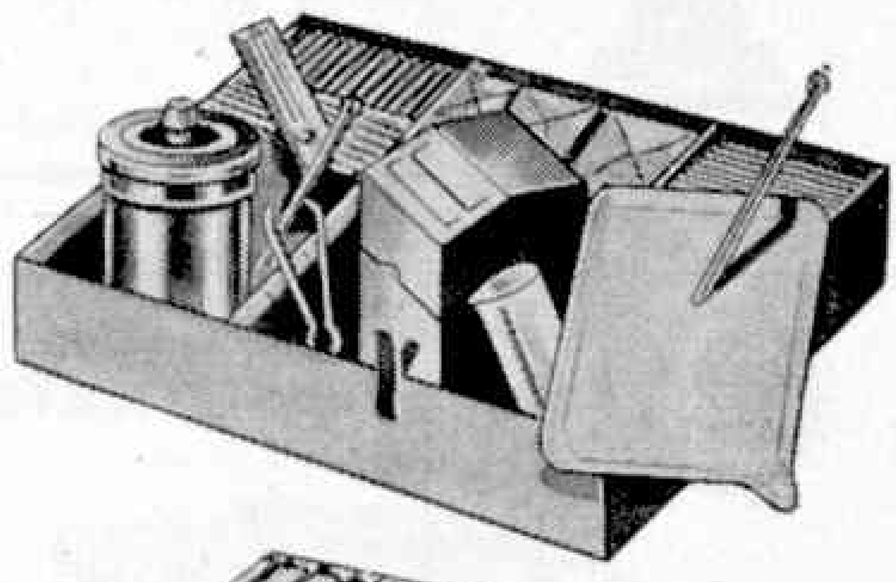

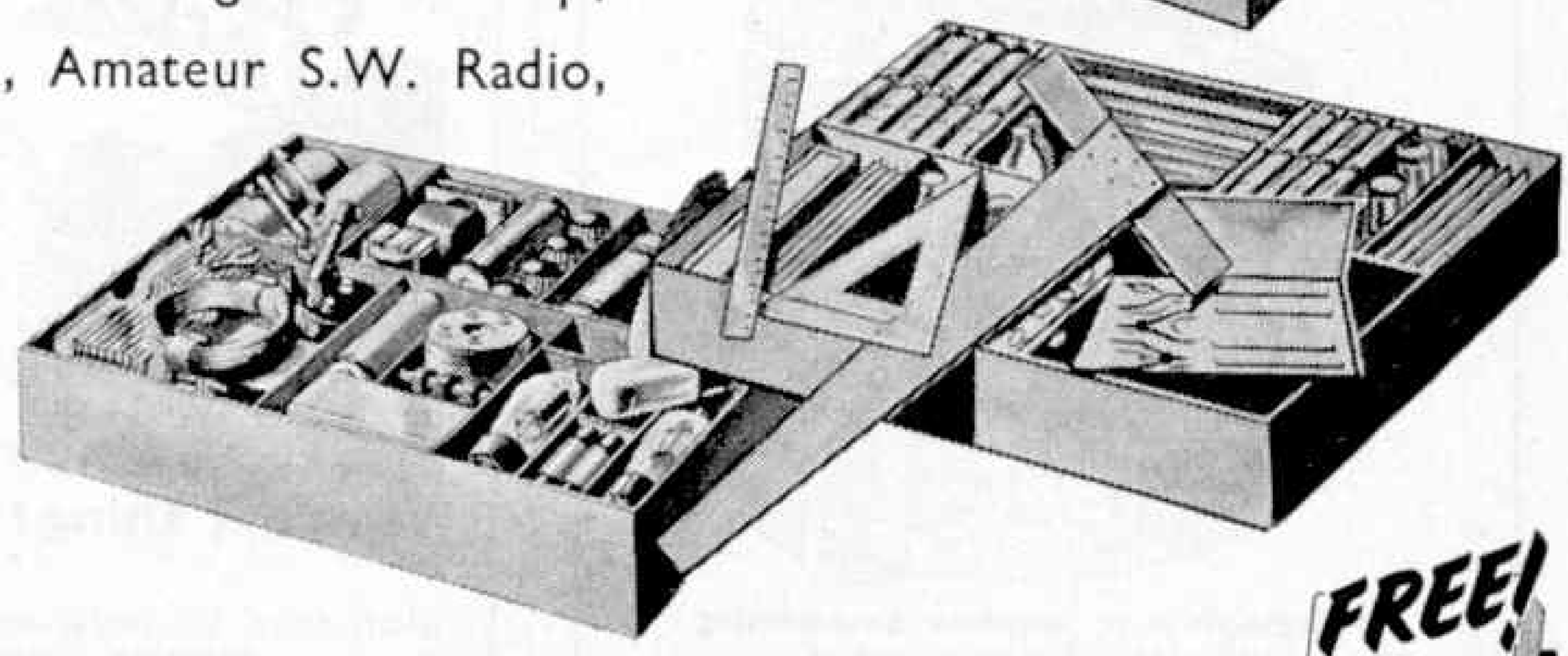

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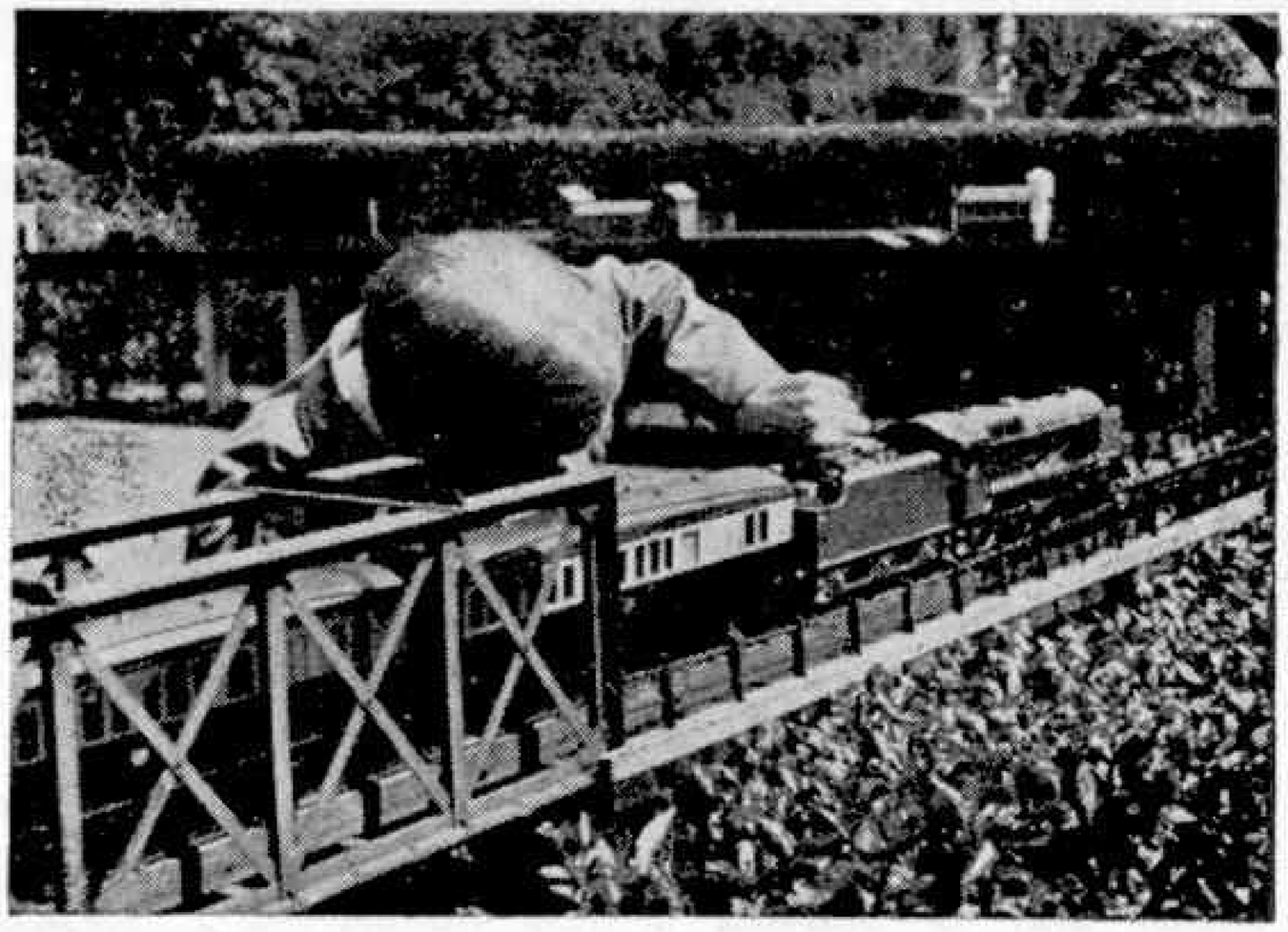

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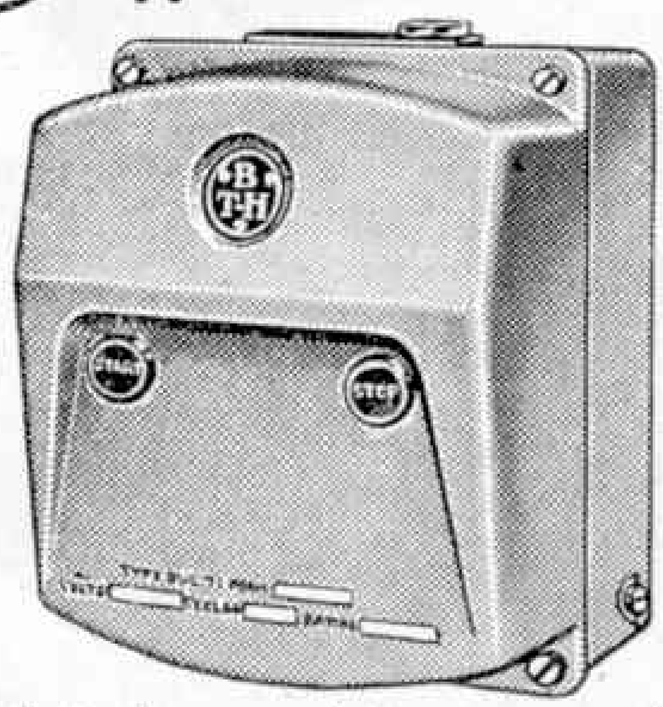

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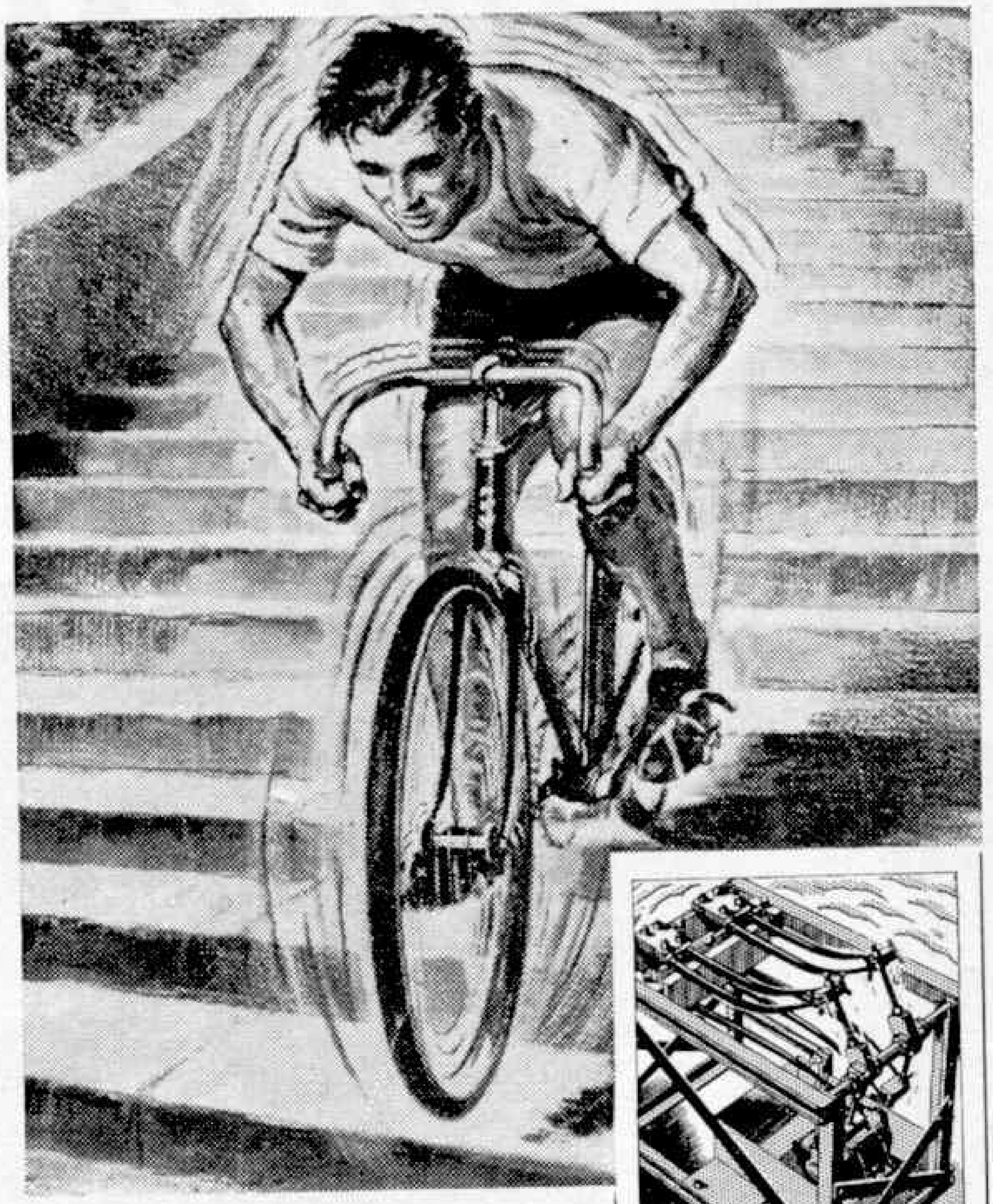

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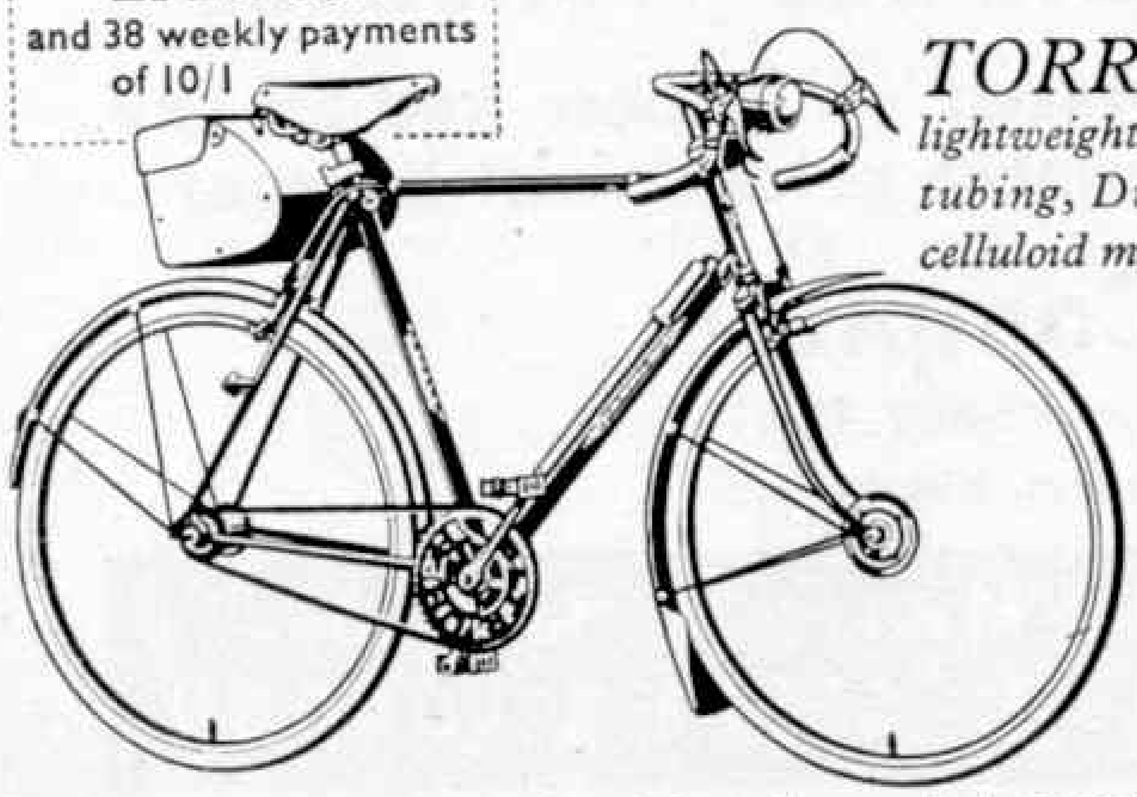

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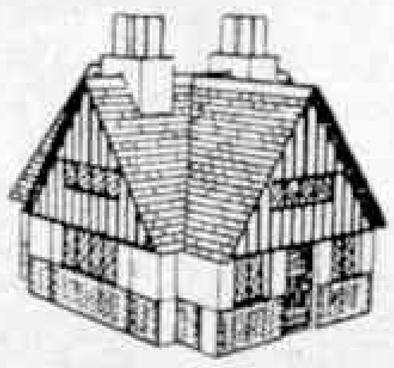

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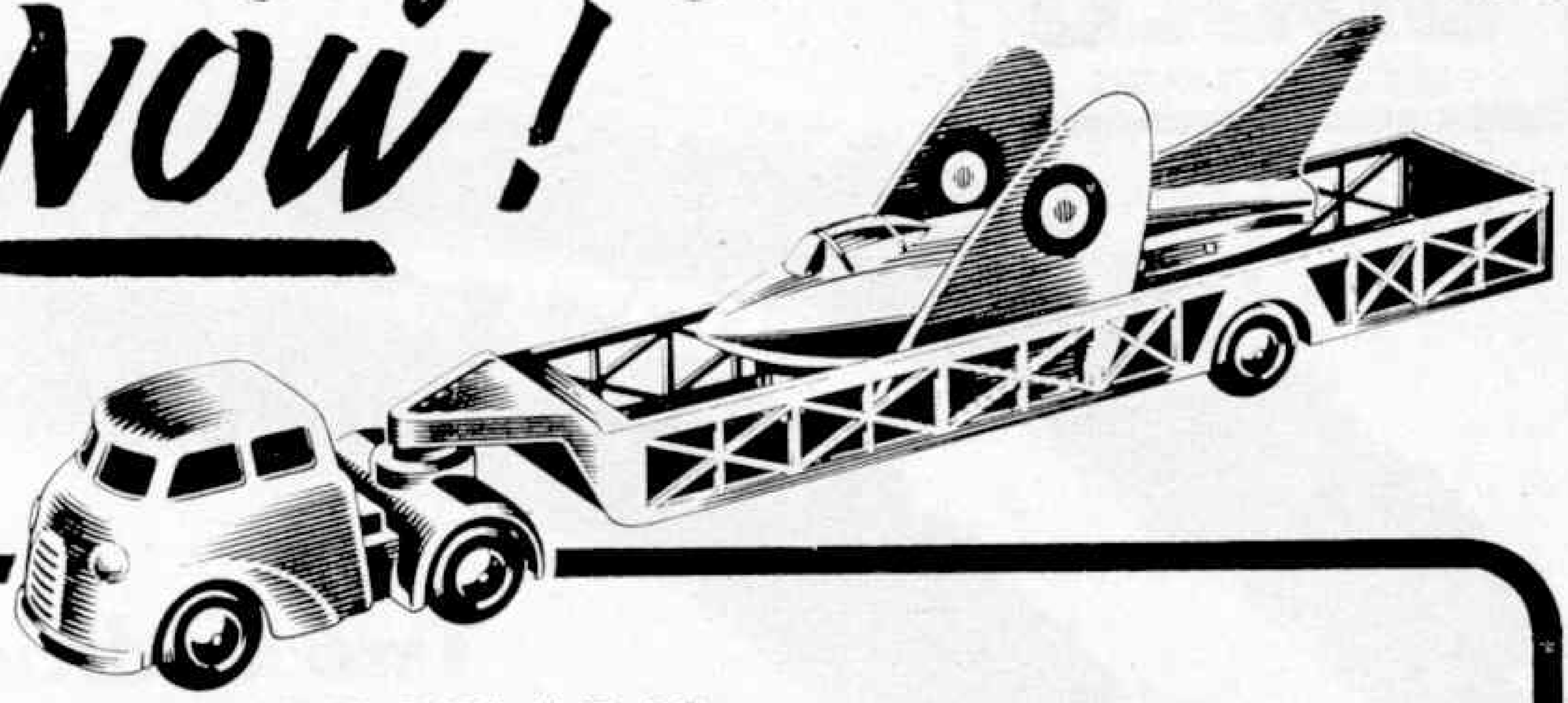

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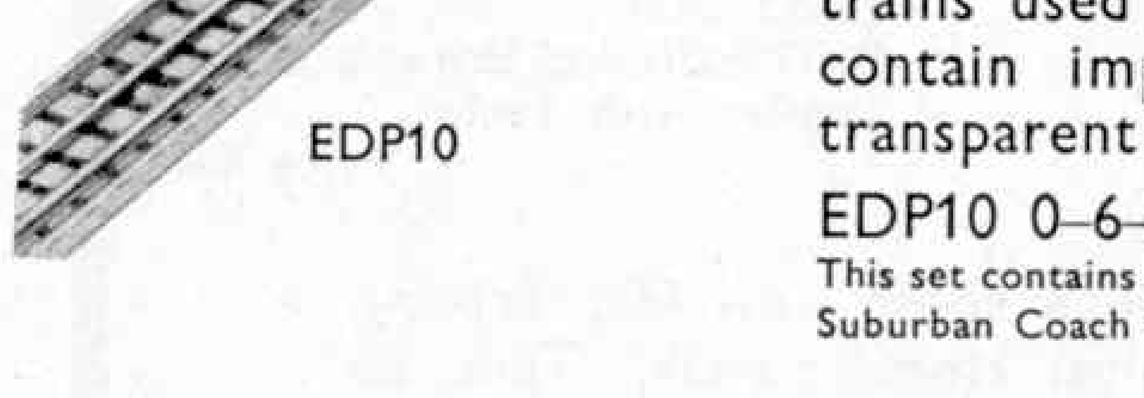

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MECCANO MAGAZINE

Editorial Office:
Binns Road
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EDITOR : FRANK RILEY, B.Sc.

Vol. XLI
No. 9
September 1956

Things to Come

It is always a good thing to look ahead with the *M.M.*, and I can promise you some interesting and varied contributions to coming issues. One article next month, for instance, deals with Acorn Bank. In Northumberland, on a site known by this pleasant name, a gigantic opencast mining operation has been started that is expected to give five million tons of coal in the next seven years. This is possible only because the largest and most modern excavators are being used.

Brothers meet—in opposition. Mervyn Charles, captain of Swansea Town, on the left, shakes hands with John Charles, captain of Leeds United, before the start of a League game at Leeds. A fine article by John Charles, the famous Welsh international, begins on the next page of this issue. Photograph by courtesy of The Yorkshire Post.

The scale of the work is shown by the fact that as much earth, or overburden, will be dug out to get at the coal as was excavated in building the Panama Canal. And the operations will include building three bridges—which seems a little strange for coal mining.

Where will you walk when city roads are so crowded with traffic that there is no room for foot passengers? This may sound a silly question, but something approaching that position is already threatened in certain cities in the United States. The answer appears to be on special walks built overhead, and the next stage is to provide moving belts to carry you along more quickly and easily. This is another strange scheme about which you can read next month.

And there will be other good articles, together with the usual pages for Meccano, Hornby and Hornby-Dublo Trains, and Dinky Toys enthusiasts. Here I must add a word for model-builders who have been engaged in the hobby for some time and love building large working models. The "Model of the Month" series that I introduced in March was designed for them, as well as to give younger model-builders some idea of the splendid prospects ahead for them, and the series indeed has proved even more successful than I had hoped. It is to continue, of course.

The Editor

My Football Years

By John Charles

This is an unusual article by a player who is a master of his craft. Splendidly built, skilful and thoughtful, John Charles achieved international fame at a very early age, but remains modest and unaffected, a delightful companion and always ready to be helpful. When I asked him to write his story for readers of the M.M., he agreed without hesitation and here it is. I have been impressed by the sincerity and sound sense it displays and I am sure you will enjoy it as much as I have.—THE EDITOR.

THIS, the John Charles story, isn't going to be as long and colourful a tale as the maestro, Stan Matthews, or some of the other evergreen heroes of football could tell. I haven't been around in the great game so long. But I've now got seven years of League football behind me and it's been great fun and wonderful experience all the way.

I was born a couple of days after Christmas Day of 1931 at Swansea, and I'm the oldest of three sons of Mr. and Mrs. Ned Charles, of Swansea. My father may not have been a famous Soccer man, but he had the reputation of being a very good half back and you can be quite sure that as a football-loving youngster in Swansea I had all the parental encouragement that a sport-loving family could give.

As a schoolboy I was blessed with physique above the average, so I was able to win a place in the Cwmdu school team at the age of 12. For two seasons, at 13 and 14, I held a place in the Swansea schoolboys representative side. At the same time I was playing on Saturdays for the Gendros youth club side, and it was in one of their first games that I was spotted by the League club "scouts."

A fine portrait of the author on the field, pictured in the former Leeds United old-gold jersey, with blue collar and sleeves. The photographs on this page and those opposite are reproduced by courtesy of "The Yorkshire Post."

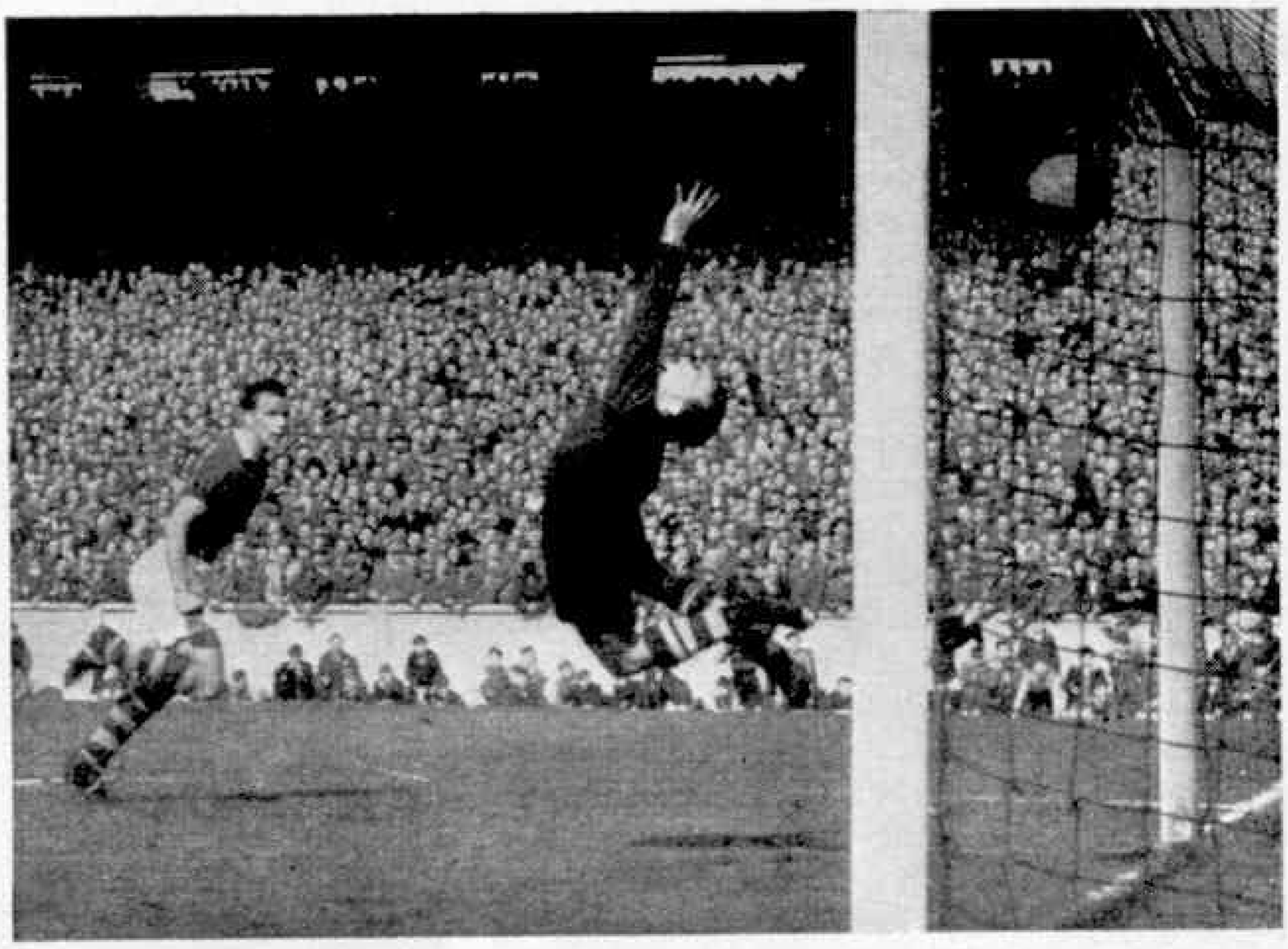
But it wasn't only in schoolboy and youth club Soccer that I gained my experience and whatever ball control I could achieve. Every night or in any other spare time you could have found me doing what thousands of other lads do in many parts of Britain, playing football with five, ten or fifteen a-side—the numbers didn't matter—in the park.

We played for hours on end and loved every minute of it. The enthusiasm was terrific down Swansea way, and it didn't surprise me a short time ago to read an article in which the writer pointed out that something like 25 Welsh international Soccer men had been produced in Swansea or the surrounding area in the past 30 years. That for an old-time Rugby stronghold is good going, but you can get some idea as to how reliable the information is when you note how many local products—many of them Welsh international stars—are playing for Swansea Town in League Soccer these days.

While still a boy I reported to the Swansea Town ground and there I found a good friend and counsellor in the Vetch Field club's second team trainer, Yorkshireman Joe Sykes. As a matter of fact, I had played in the same youth team as his son, and when Mr. Sykes came to see us in action

he went back and persuaded the "Swans" to take me on their ground staff.

Later, while still playing some youth club Soccer, I was spotted by Leeds United's "Scout," Mr. Jack Pickard. Many have been the players both before and since that Mr. Pickard has recommended to the club in his native city. I'm told that at one time he recommended Trevor Ford and Roy Paul when they were youngsters, but United were beaten in the hunt for their signatures.



Leeds United's first goal in the vital match against Bristol Rovers at Elland Road, Leeds, in April last. The Rovers' goalkeeper leaps in a vain effort to stop a Charles header.

It was under that remarkable football character, Major Frank Buckley, that I went to serve at Elland Road, and he became another man who had a big influence on my career. Although a strict disciplinarian from the old Army school, he always had words of encouragement for the youngsters. It was he who gave me my big chance in senior Soccer at the age of 17. Although nearly six feet —I'm six feet one and a half these days— I was, perhaps, still physically immature. I think I tipped the scales at approximately 11 stones. Now, of course, I'm over 13 stones.

My first game was a "friendly" at Elland Road between United and the famous Scottish club, Queen of the South. What an occasion it seemed when I realised that my opposite number in the Scottish side was dashing Billy Houliston, who, only 10 days before had been the spearhead of a hard-hitting Scottish international attack that had gained a good win against England at Wembley!

But, with all his experience, Billy took no advantage of my immaturity. He played against me like a grand sportsman, and I was quite thrilled after the game when he told some of the United officials that I was the best centre half he'd ever met. Whether he was trying to encourage me or whether he was quite serious, I couldn't be sure, but his words spurred me on to greater effort. I was full of ambition.

While I was still 17, the Major gave me a regular League team place with United. There were quite a number of interesting personalities in the Elland Road ranks in those days—fellows like Irish internationals Jimmy McCabe and David Cochrane, Scotsman Ken Chisholm, Tommy Burden (now with Bristol City), Len Browning (now, unhappily, invalided out of Soccer) and Welsh international Harold Williams.

Charles, at centre forward, beating an opposing full back.

I was still only 17 when I came up against what, it seems to me in retrospect, should have been an ordeal. Perhaps because I was so wrapped up in the game, it didn't seem that way at the time, difficult though this may be to believe. I was playing with United at Plymouth. In the last three minutes of the game the sides were level when the referee awarded a penalty kick to United. The crowd created a terrific din. The award was hotly disputed by Argyle. I was called up from centre half to take the kick from the spot. As I placed the ball and paced back the crowd still chanted away. Yet I managed to go up and drive the ball past goalkeeper Shortt into the net and I felt that I had passed my first serious test so far as coolness in a crisis was concerned.

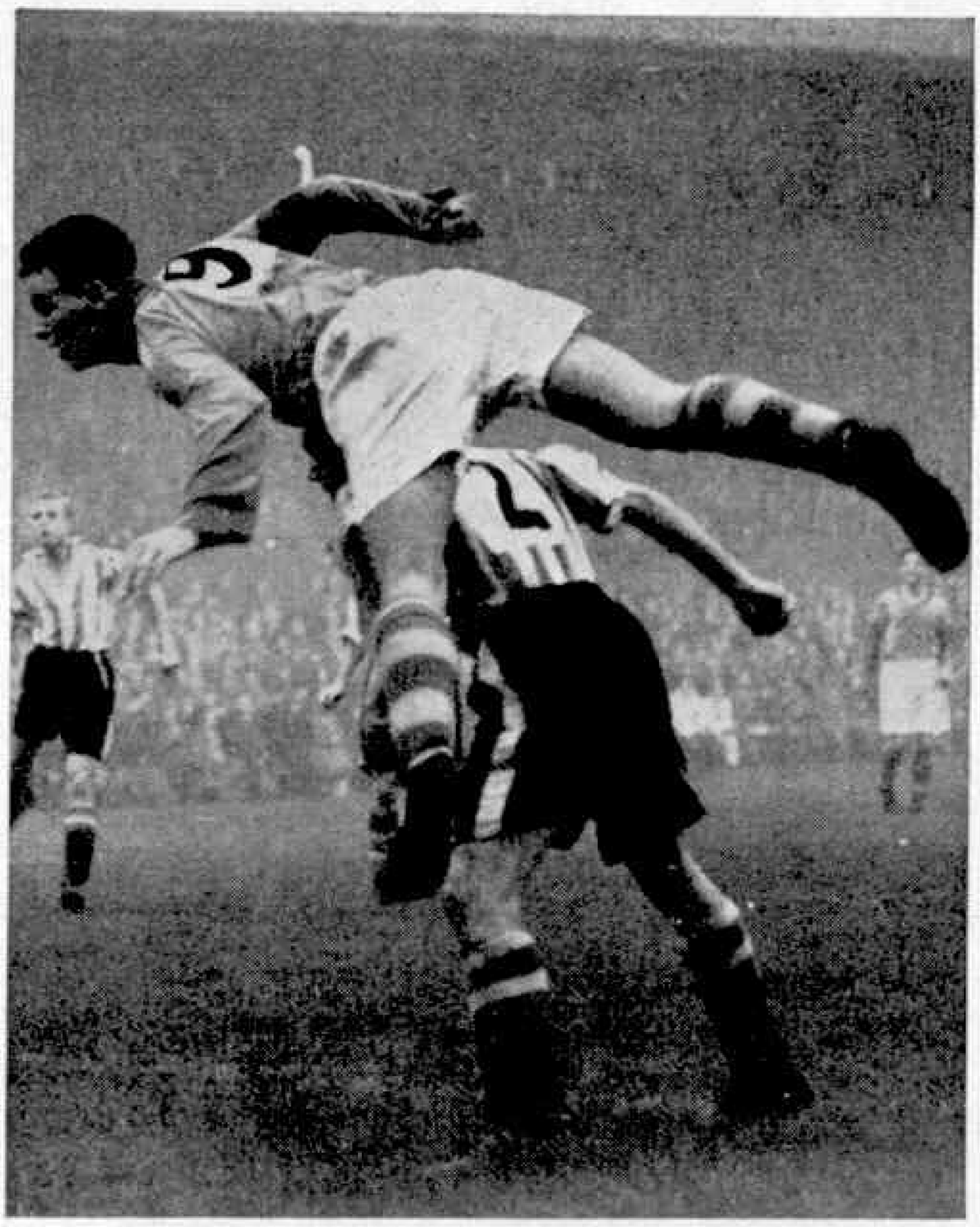
Things were going along quite happily until the spring of 1950. Then came thrilling news. At the age of 18 I was selected for Wales and I was told that I would be the youngest player ever to wear the coveted red shirt in which so many of my famous fellow-countrymen have played with such fire and fervour.

I stepped out at centre half in the red shirt against Ireland at Wrexham and, unhappily, it wasn't the best of days for me. Although so used to the famous Elland Road roar—our spectators in Leeds can really raise a terrific din—I think I suffered from big-match nerves.

I've often thought about that game and I'm sure that my trouble was the fact that I didn't regard it as just another game of football. It seemed to the youthful John Charles that he was called upon to play a different type in the international sphere, and that wasn't the case. Anyhow, the butterflies were there in the tummy, and no doubt my inability to produce even my club form cost me my place for three seasons.

But here again was one of those valuable lessons which experience alone can give one. Even today, with many international games and seven seasons of League and Cup campaigns behind me, I sit and reflect on the lessons of experience. There's always something new to learn in this game, and I regard it as my job as a footballer to learn the lessons and apply them to my work for my club and my country.

In my early days in League Soccer I soon found certain centre forwards who were particularly elusive customers. They were the nippy little fellows like Charlie Wayman (then with Southampton), Cecil McCormack (while with Barnsley) and Bill Dare (when a Brentford player). Some of these will-o-the-wisps gave me far more trouble than the bigger fellows. Quick-



A mighty leap and a brilliant header into the opponent's goal. John Charles scores against Brentford in a match at Griffin Park.

wittedness was their strong-point and speed on the turn helped them to become dangerous and darting spearheads.

Here again was a lesson to be learned. Such players set me thinking about my deficiencies. They made me realise that I had to work out different tactical approaches for differing types of leaders.

While I was still in my 'teens, and still with my National Service before me, there were reports in some of the newspapers that Sunderland would be prepared to pay something like £35,000 for my services. Well, I didn't go around regarding myself as a £35,000 player! Any fellow who gets ideas like that is asking for a "big-head" reputation, isn't he?

When I went into the Army I got a chance to become a sporting all-rounder. While serving with the Lancers I took up

boxing. Well, I wasn't any Marciano, I can assure you, but I enjoyed some grand slams in the ring while representing the regiment as a heavyweight. Unfortunately, my ring career came to an abrupt end when it was discovered that, according to one of those strange twists of the amateur sporting laws, I was a boxing professional because I received payment for playing football! Thus, I was ranked with the "pros," though I'd never received a purse, and I couldn't carry on boxing among the amateurs.

At cricket, too, I was enjoying myself—mainly as a fast bowler. Here, too, I wouldn't hold out any claims to being a Tyson or a Trueman, but my best "bag" was six wickets for 13. Since that time I've been able to play some Leeds and District League cricket, and you've got to play among the fellows in league cricket in Yorkshire to appreciate just what a wonderful sporting lot they are.

A Charles goal in an international match between Wales and Scotland at Hampden Park, Glasgow. He rounds an opponent and shoots into the net.

While I was still in uniform there came my first serious setbacks in sport. In a pre-season practice game at Elland Road I suffered a painful leg injury. I had to undergo a cartilage operation. At that age, it seemed to me that my sporting world had fallen to pieces. Happily, there was former England captain Willis Edwards, who is still a member of Leeds United's training staff, to console me. Willis convinced me that it wasn't the end when he explained that he'd achieved a Soccer record of getting back into the game five weeks after a cartilage operation. He also convinced me that it had not affected his career one jot.

After getting over that setback, however, another soon followed in its wake. At the end of the same season I was playing in an Army game at Gretna, on the Scottish border, when I injured the other knee. Yet another cartilage had to come out. What a career I was having. At the age of 18 I'd won an international cap and lost two cartilages!

But trainer Bob Roxburgh (a former Blackburn Rovers star), Willis Edwards and Major Buckley helped me to think that it was nothing to worry about, anyway, and now I know they were right.

Soon, once again, Major Buckley was to show his faith in me and I didn't intend to let him down. United had a centre forward problem. He asked me to have a go up front. It was nice of him to put it that way to a youngster such as I was. He could have ordered me to do so, anyway.

I took on the job quite happily, but not without a lot of thought. Often I would go back to the ground on my own when training sessions had ended and flick the ball up against the back of the stand so that I could leap in and head it as it came towards me. It seemed to me that nobody but John Charles could make me into a centre forward. I had to acquire the skill and the technique myself.

If any young players read this, do, please, accept my advice. The coaches, with all their knowledge, can put you on the right road. They can help and advise you. *But a lot depends on you. You've got to practise and keep practising.*

In my first full season as United's leader I managed to hit 43 goals in League and Cup Soccer. The statisticians tell me that my 42 goals in the League has only been exceeded once since the 1937–38 season and that was by luckless Derek Dooley, of Sheffield Wednesday, who scored 46 in 1951–52. I remember a rare tussle at Hillsborough with Derek when I was at centre half. I kept (*Continued on page 492*)

Week-end at Rheims

Thrills at a French Grand Prix Meeting

By Peter Lewis

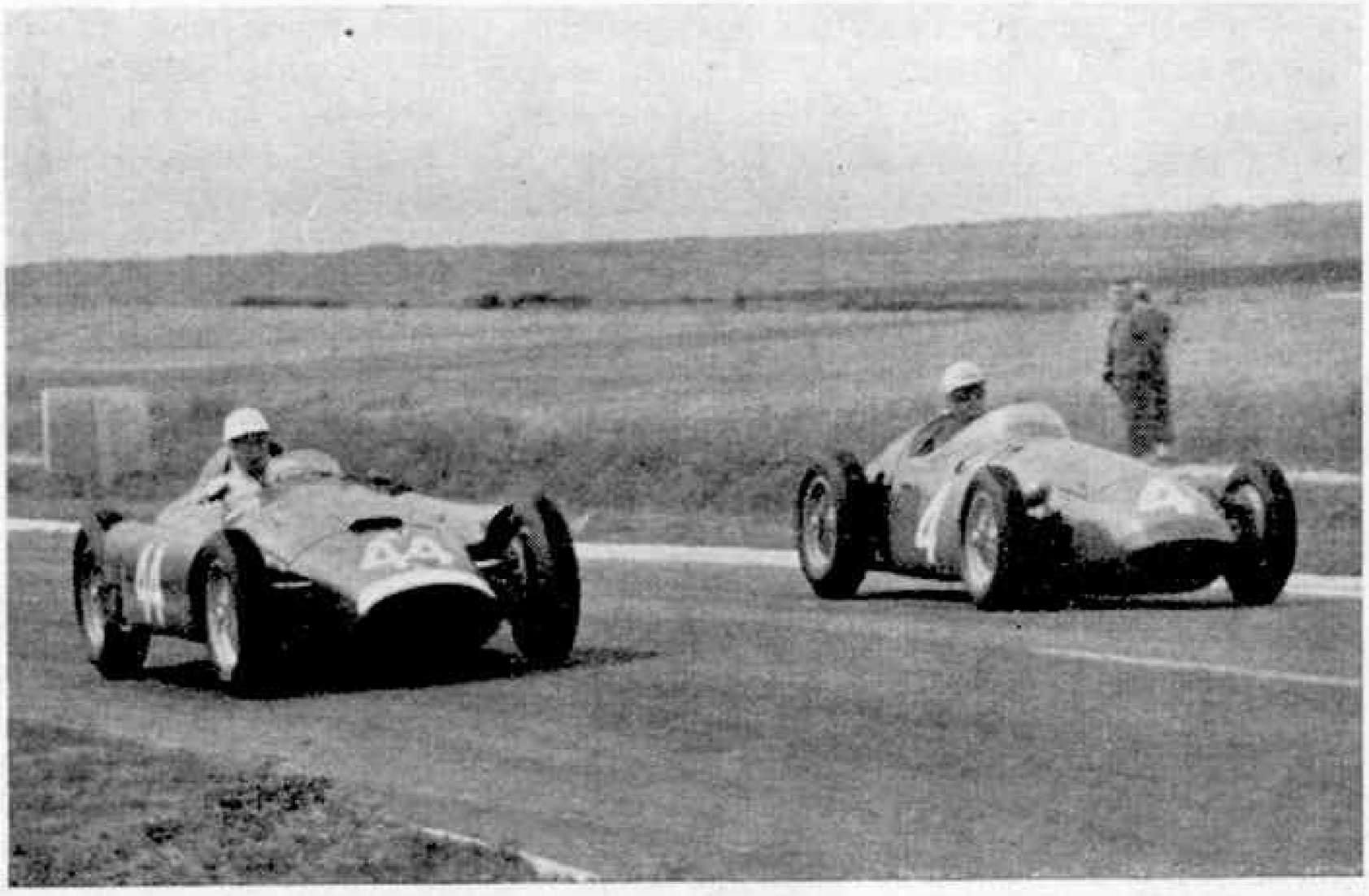
OF all the famous European motor racing circuits, the World Championship course outside the French city of Rheims is one of the fastest and from the spectator's point of view, one of the most spectacular. This is as it should be, for more than any other nation France has been responsible for the development of motor racing since the early days, and the average Frenchman has a wide knowledge of this increasingly popular sport. He will proudly tell you that the world's first motor race, in 1894, was won by Count de Dion, who puttered along over a 79 mile course from Paris to Rouen at an average speed of 11.6 m.p.h.

Unlike our own Championship circuits of Silverstone and Aintree, the one at Rheims—like so many on the continent—is part of the everyday road system. It is ultra fast, with two long straights, two tricky hairpins and a succession of very fast curves, and swerves between the pit area and the first hairpin at Virage de Muizon. Sheer speed is almost all that matters, allied with reliability to make high averages in the region of 120 m.p h. possible.

A fine set of advertisements on the course at Rheims is seen in the picture at the head of the page, but the Ferrari team have no time to look at them. In No. 10 is Fangio, Castellotti is in No. 12, and Peter Collins, the ultimate winner, in No. 14 brings up the rear. Photograph by courtesy of Motor Racing.

When we arrived on the Saturday afternoon—having breakfasted early in London and crossed with my Fiat 1100 on the Air Ferry to Le Touquet—the Rheims "festival of motor sport," twenty-six-and-a-half hours of almost non-stop motor racing, was already under way with the first 12 hour Sports Car Race. Stirling Moss's own 1,500 c.c. Cooper-Climax had retired after its meteoric progress for nine laps of the $5\frac{1}{2}$ mile circuit, during which time Stirling lifted the lap record for this class to 112.16 m.p.h.

But we did see another Climax-engined British challenger—the Lotus of Bueb and Mackay Fraser—fight it out with the ultimate winner, the Porsche of Von Frankenberg and Storez, until the Lotus retired with gear-box trouble after ten hours of racing. It was a stirring sight, from where we sat high up in the Press Tribune, to see the beautifully proportioned green car sweep up the straight from Thillois hairpin, sending a blast of crisp, purposeful sound upward as it tore through the pit area at over 100 miles an hour. If only some of our motor car manufacturers could see these British Lotus and Cooper sports cars

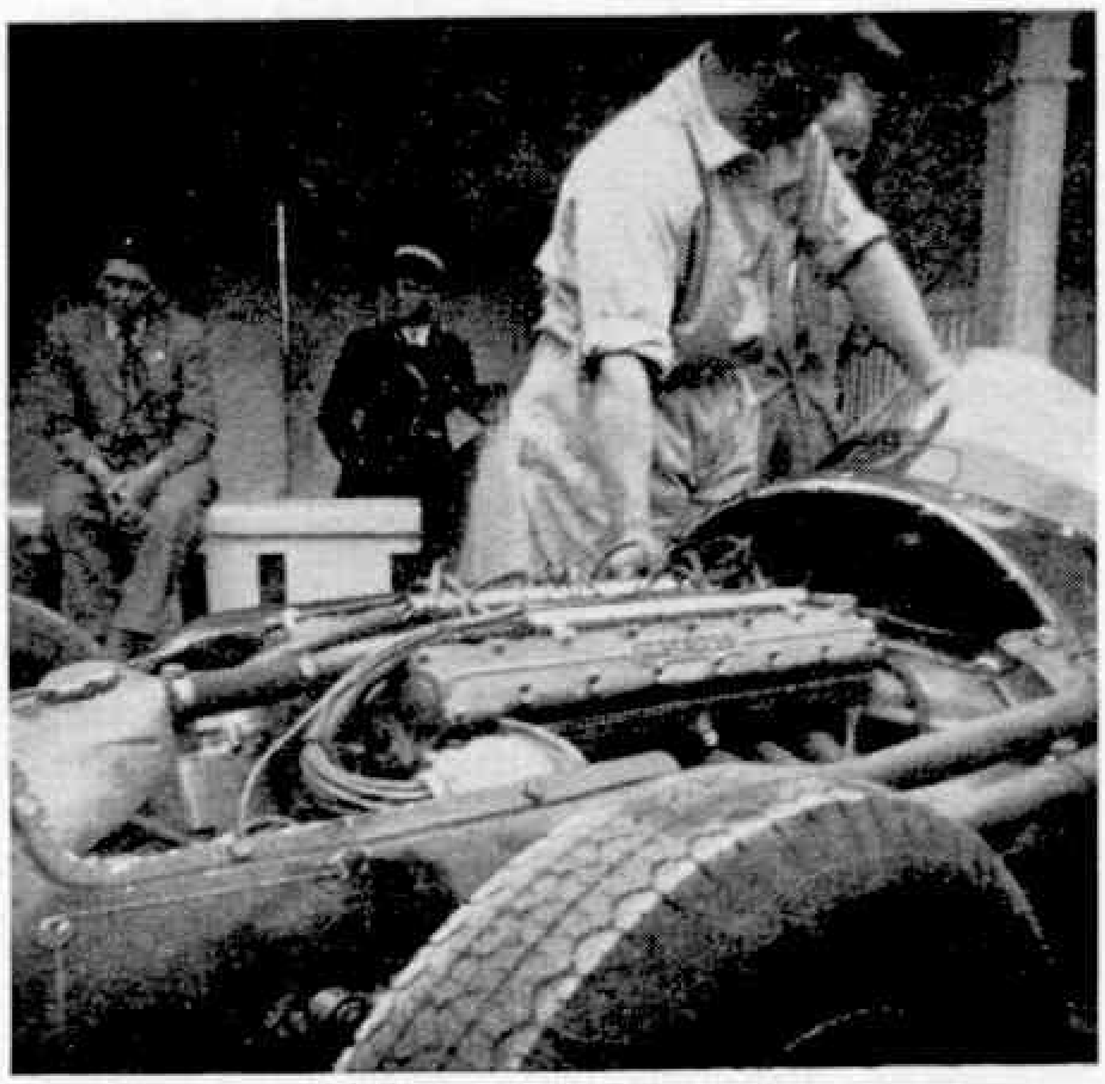


Behra in a Maserati, No. 4, on the right, and Gendebien in a Ferrari No. 44. Photograph by courtesy of Motor Racing.

in action, and hear the comments of foreigners, who cannot understand how we build them so well and so cheaply, they would realise what tremendous prestige value there is in this much maligned sport of motor racing.

The second 12 Hour Sports Car Race was due to start at midnight, and from the restaurant beneath the Tribune we watched the gendarmes—shoulder to shoulder—advance slowly through the pit area. Extended the full width of the track, they were in fact a human broom. Giant barrage balloons — much favoured on the continental circuits for publicity purposes —swayed lazily, high up in the glare of searchlight beams. The line of pits was brightly lighted, whilst in the paddock crowds milled backwards and forwards, chattering excitedly.

With ten minutes to go we went up to our *pupitres* in the Tribune. The grandstands were full, as were the spectator boxes along the top of the pits. "In the Mood," which had been blaring at us loudly over the radio, was suddenly cut off, and the drivers took position in the white circles opposite their cars.



One of the Maseratis warming up before the race.

The patter of their feet as they sprinted across the track was followed by the thunderous roar of engines. As the cars pulled away and disappeared under the Dunlop Bridge, and over a slight rise into the pitch darkness, it was a Jaguar that was in the lead.

One minute twenty seconds . . . thirty . . . forty . . . fifty . . . Then, on the far side of the circuit, we could see the headlights of the leading cars. They looked like Jaguars. They were Jaguars—but in what order? It is not often that I cannot spot numbers, but the three "works" Jaguars and the lone Ecurie Ecosse car came up from Thillois and went through the pit area so fast that I could not pick out a single one.

Hopelessly I turned to my neighbour, a Dutch journalist, and he showed me the order — Bueb, Hawthorn, Flockhart, Titterington. And so it went on, a most impressive display of British engineering genius. It was Jaguars 1, 2, 3, 4 all through the night, and when dawn broke and a fine drizzle blanketed the circuit they still led the rest of the field. Admittedly the opposition was not formidable, but even so, to cover 1,331 miles at an average speed of 111 m.p.h.—with a record lap by Hamilton at 118 m.p.h., nearly 5 m.p.h. faster than the 1954 fastest lap—was a magnificent achievement. It was certainly worth sitting up all night to watch this impressive Jaguar victory.

The 42nd Grand Prix of the Automobile Club of France followed at 2.45 p.m., and soon after 2 p.m. I was walking along the line of stationary cars with my camera, having managed to nip quietly through the back door of one of the pits when the gendarme was not looking.

Mike Hawthorn looked really ill and very worried, while Stirling Moss was resigned to the fact that the Ferraris were faster, and was not at all surprised when I told him that by our reckoning his Maserati was on the third row of the grid.

"Works" Jaguars parade at the finish of the second Twelve Hour Race that preceded the Grand Prix at Rheims. In the 1,500 to 3,500 c.c. class they were first, second and third, driven respectively by Duncan Hamilton and Ivor Bueb, Mike Hawthorn and Paul Frere, and Desmond Titterington and Jack Fairman. Another Jaguar, the Ecurie Ecosse car of R. Flockhart and N. Sanderson, was fourth. These drivers later were first in the Le Mans 24 hour event.

There was a roar as first one engine was started, then another. Soon all the G.P. cars were being warmed up. It was impossible to carry on a conversation. Blip—blip—blip—, and the needles on the rev. counters climbed round the dial. Then along came the police "broom," and the first cars were being moved to the starting grid as I made a quick exit over the Vanwall pit counter.

In the Press Tribune, I could sense an atmosphere of expectancy, as if we all knew that this famous circuit in the heart of the Champagne country would provide the sort of drama it has seen so often before. For it was here that Hawthorn wrested victory from Fangio in the French G.P. of 1953, and here that Mercedes-Benz made their sensational return to post-war Grand Prix racing in 1954.

With ten minutes to go there must have been over 150,000 spectators around the circuit. The crowds massed in the grandstand leaned forward to see the cars on the grid.

With two minutes to go, the engines came to life. Moss's car would not start and mechanics rushed across the track. With only seconds to spare they got the Maserati going and in position on the grid. Then the field was away, with Collins in his Ferrari in the lead. The red, green and blue cars accelerated past the beflagged pits in a crescendo of noise, and as they disappeared under the bridge the mechanics trundled their portable starting motors back to the pits.

We waited, unable to understand the excited chatter of the French commentators. All eyes in the Press Tribune were focused on the far side of the circuit, where the cars come out of the woods, flat out, and race down the straight towards Thillois at 170 m.p.h.

A shout went up. *There they are.* Dots in the distance . . . red, red, red, green. Round Thillois at 50 m.p.h., up the straight and past the pits at 150 m.p.h., it was the Ferraris of Fangio, Castelotti and Collins that led the Vanwall of Schell.

The story of this epic race is well known. How Schell retired on lap 6 and Hawthorn —a sick man—on lap 11. How Schell took over Hawthorn's Vanwall and—in seventh place—went after the Ferraris, which were lapping, only a length apart, with the regularity of an express train. The British car went like an express train too, and the excitement was intense as the laps were reeled off and we could see that it was gaining on the Ferraris. Then, suddenly, the green car was in amongst

(*Continued on page 492*)

A Scottish Rail Tour

Glasgow to Aberdeen and Back

By G. H. Robin

THERE are not many named trains running wholly within the Scottish Region of British Railways, and three of them run each weekday between Buchanan Street, Glasgow, and Aberdeen. These are *The Granite City*, leaving Glasgow (Buchanan Street) at 10.15 a.m. and returning from Aberdeen at 6.10 in the evening; *The Bon Accord*, leaving Aberdeen at 6.20 a.m. and providing the 12.15 p.m. service from Glasgow; and *The Saint Mungo*, which leaves the North East Capital at 11.30 a.m., and in turn provides the stock for the 5.30 p.m. from Buchanan Street.

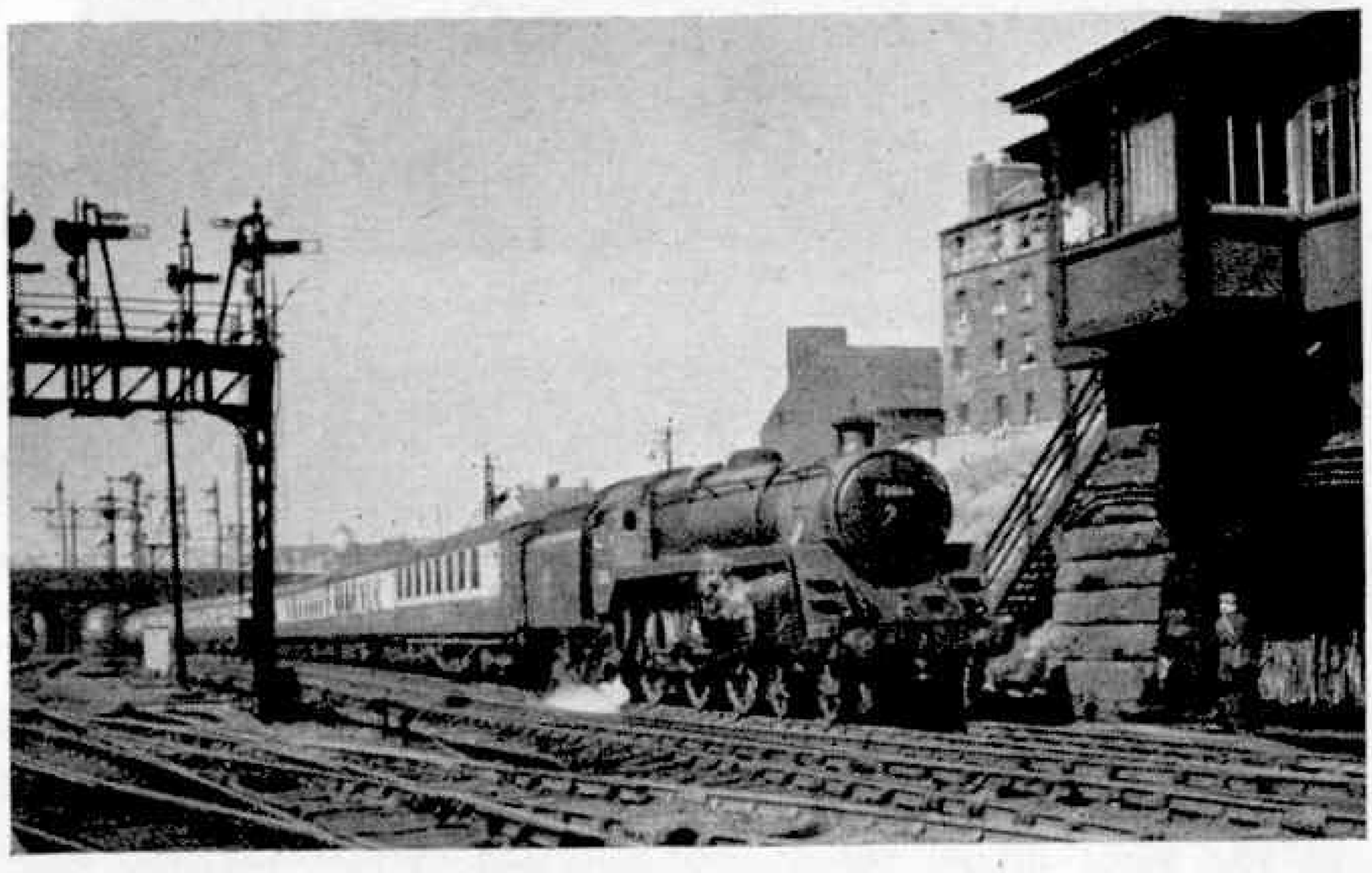
Aberdeen is a beautiful city, with handsome buildings of local granite. "Bon Accord" is its motto, while Saint Mungo is the patron Saint of Glasgow.

Some time ago I completed a round trip between Glasgow and Aberdeen, going north from Buchanan Street by *The Granite City* and returning via Dundee to Queen Street, Glasgow.

In summer the train loads up to 12 or 13 vehicles, including dining accommodation, and one class 5 M.T. 4–6–0 runs right through to Aberdeen, though on all the other trains engines are changed at Perth. Right from the platform end the line rises at about 1 in 78, but we did not have banking assistance. Soon we entered the short tunnel that passes under the Port Dundas and the Monkland Canal, and shortly after emerging we passed St. Rollox works, where formerly the Caledonian Railway made their own engines.

As our Standard "5" pounded its way up, we passed Balornock running sheds on the left before the line from the original station at Townhead joins on the right. At Robroyston we are at the top of the hill, where bankers drop off trains that have needed them.

On to the historic town of Stirling the route is undulating, passing through part of the old Caledonian Forest near Castlecary. Shortly after leaving the fine station at Stirling we crossed the River Forth on a girder viaduct alongside the old 14th century bridge seen on our left, and on our right the tortuous course of the river was visible, with the lofty Wallace Monument high up on its crag at the end of the Ochil Hills. To the left then came the fine view of Stirling Castle on its rock as we swept down towards Allan Water, this marking the foot of the steep climb that followed through the Cathedral Town of Dunblane. From a maximum of about 55 m.p.h. in the dip speed was down to about 40 through Dunblane station, where the picturesque line to Callander and Oban branches off.

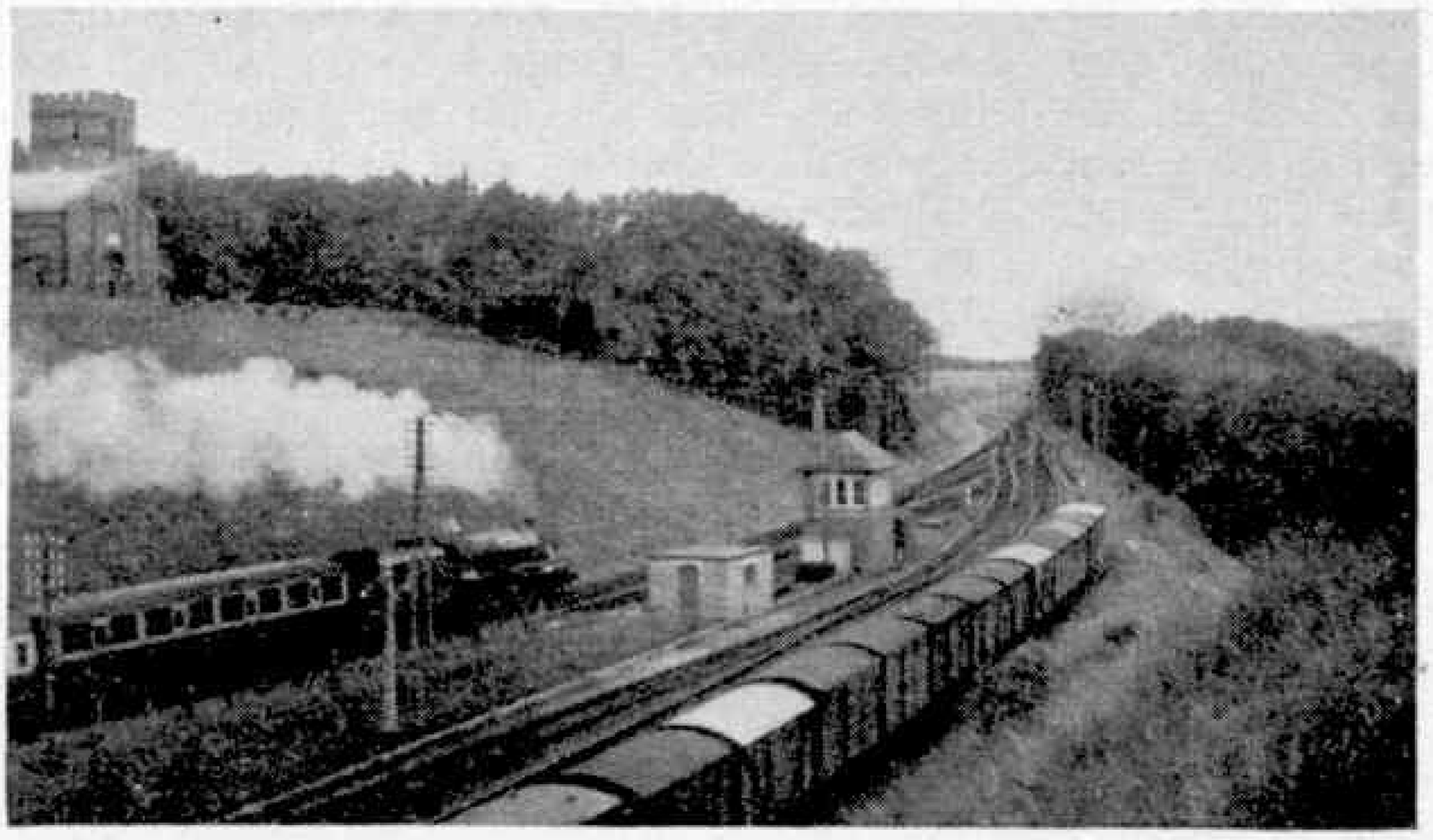


B.R. Standard class 5 mixed traffic 4-6-0 No. 73006 leaving Glasgow, Buchanan Street, with "The Granite City."

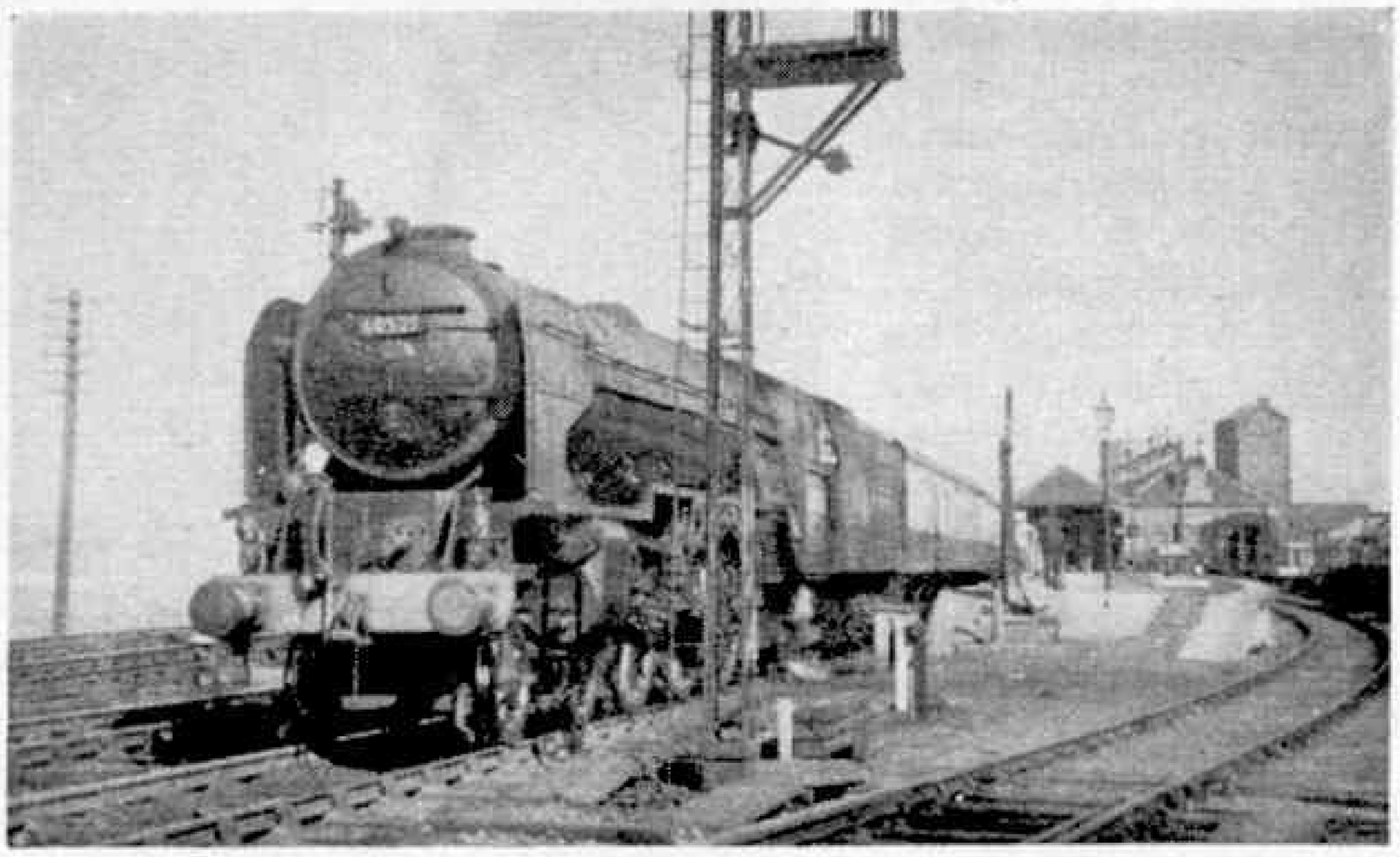
Once up on the tableland we made good time to Gleneagles station, where the branch train to Crieff was waiting. There followed a smart run down to Perth, and approaching that city we threaded the long Moncrieff Tunnel and came to a smart stop, our first, at the north end of the long Down platform.

After an 8 minute stop, during which enginemen were changed, we set off on one of the most interesting stretches of railway

track in Scotland. The first 7¼ miles to Stanley Junction, where we could see the single line of the old Highland main line curving away on the left, are against the engine, but then follows about 40 miles of straight and practically level track along Strathmore. As far as Forfar, 32½ miles from Perth, the Caledonian Mail scheduled time used to be only 32 minutes. But no trains are so timed today, though some up trains running late frequently do the run in the even half hour or a little less, providing there is no stop to be made at Coupar Angus.



Above, the "Granite City" approaches Kinnaber Junction. Below, No. 60527 "Sun Chariot" waits at Montrose with an Aberdeen-Edinburgh train.



After stopping at Forfar and Bridge of Dun stations, I looked to the right across the expanse of water known as the Montrose Basin, and could see the viaduct carrying the East Coast main line over the South Esk river. The fairly steep rise took us past the historic Kinnaber Junction signal box. At one time there were thirteen junctions between Perth and Kinnaber, each providing a passenger service with complicated connections. Alas, all have now been withdrawn except for the Highland section trains from Stanley.

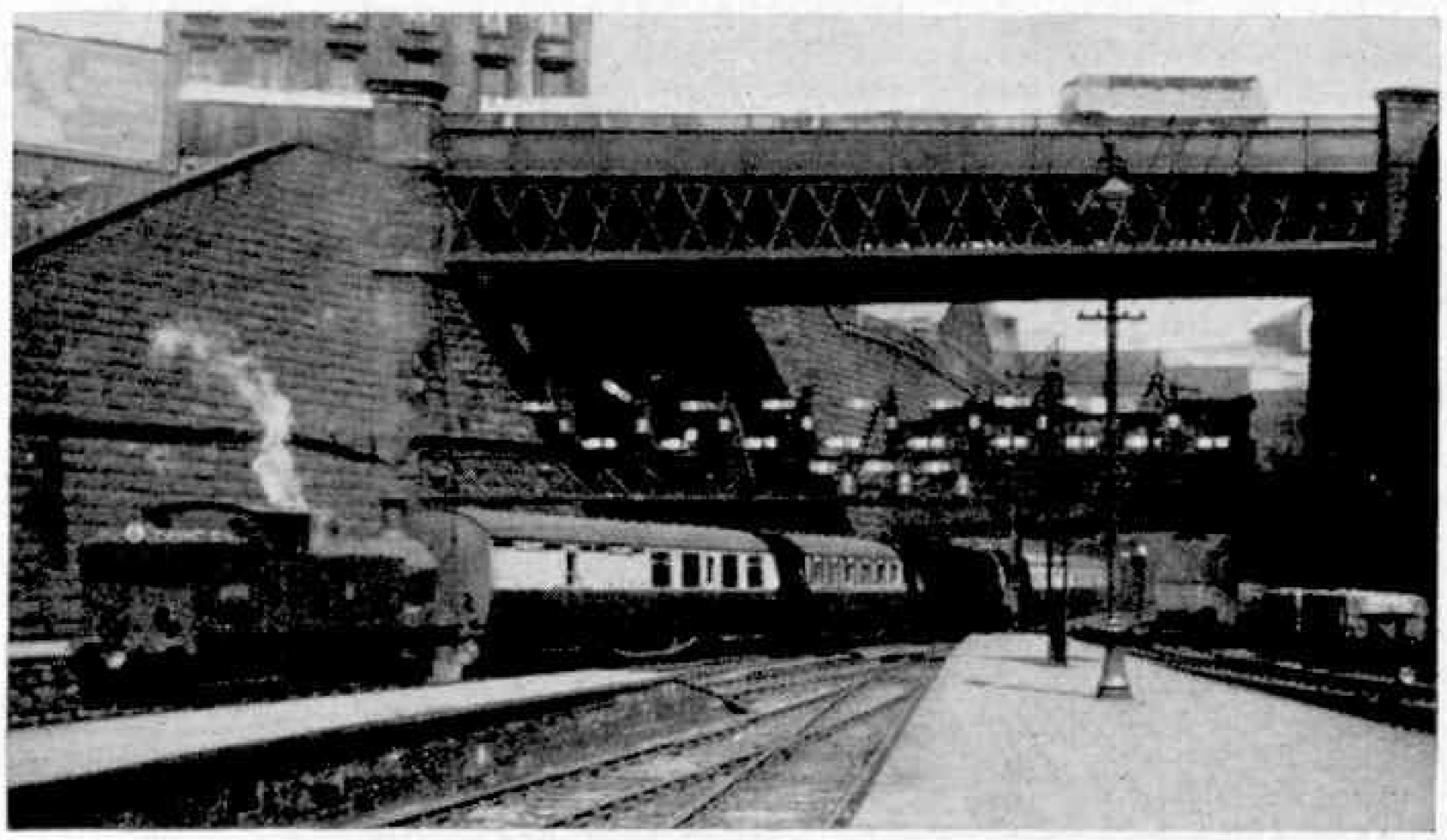
Beyond Kinnaber Junction there was nothing of special interest, apart from a distant view of the Grampian Mountains, as we passed through the farming countryside known as the "Mearns," until Stonehaven is reached. This station is approached in both directions on high curved girder viaducts carried on masonry pillars. It is just over 16 miles from Aberdeen and for the rest of the way we followed a steeply undulating course along the cliff tops. To the East we had fine views of the North Sea, dotted with fishing boats, and of deep coves in the cliffs with turbulent waters foaming right up to within a few feet of the railway, but far beneath it. Then a final swing to the left past Nigg Bay afforded us a fine view of our destination, the Granite City itself.

My return journey next day began in the mid-day East Coast train to Edinburgh, from which I changed at Dalmeny, which is at the south end of the Forth Bridge. The engine was an ex-L.N.E.R. V.2 2–6–2 mixed traffic type. The start was slow, as the line rises immediately at 1 in 98, and after Ferryhill Junction continues climbing, but on easier grades, to the cliff tops again. Our driver no doubt was hoping that no fish train had been allowed to precede us, as drainage from the vans makes the rails very slippery and causes anxiety to drivers of following heavy trains.

After passing Stonehaven we climbed again, but once over the top we reached 70 at Fordoun, and perhaps may have attained 80 crossing the North Esk river. Then came a very severe slowing for diverging at

Kinnaber Junction, following which it was easy downhill for two miles to Montrose.

After a two minute stop there we set off on a real tough section as we crossed a single line girder viaduct, glimpsed yesterday from *The Granite City*, and climbed through a rocky cutting up to Usan Box. There the line doubles again, and we continued through pleasantly



Glasgow, Queen Street, looking towards the tunnels leading up to Cowlairs. A departing train is being assisted in rear by an ex-N.B. 0-6-2 tank No. 69188.

rolling countryside, with some fine views of sandy bays along the coast, to St. Vigeans Junction at Arbroath. Then followed a run on the very attractive section of 16½ miles, almost dead level, along the Firth of Tay to Dundee. Then with speed gradually rising to about 65-70 m.p.h. I began to notice the signs of industry and knew we were approaching Dundee. This was confirmed by a glimpse of the famous bridge across the Tay.

Approaching Camperdown Junction we slowed again, this time to diverge to the left and through the Dock Street tunnel to enter Dundee (Tay Bridge) station, down below street level, where we changed engines. The island platform is roomy enough, but otherwise the site is very cramped.

From Tay Bridge station we had another difficult start, as we had to climb immediately from this dungeon to cross over the first of the two big bridges on this route. With the engine getting a good grip on the rails, we passed Esplanade station and from the curved approaches I got a fine close up view of the structure we were about to cross. Its arches are curved at this end and rise steeply for about a third of the length of the bridge, at about which point they straighten out and become level. On our left hand I noticed the piers of the first bridge, which was blown down during a terrific gale only a few years after it had been built.

On reaching the Fife Coast the timetable allowed us 82 minutes for the 49¾ miles to Dalmeny. This is not exactly express speed, but the line is not laid out for fast running, particularly beyond Thornton Junction. By this time we were in the Fife mining districts, and as we neared the station signs of pits became apparent, with embankments topped up with ashes, severe permanent way slowings, etc. It is hard to believe that the next 19 miles on to the Forth Bridge actually form a main line, as they are very undulating, with short steep banks and tortuous curves necessitating speed restrictions, many of which prevent the ensuing hills being rushed.

From the left hand side of the compartment as we ran westward, not far from the shores of the Firth of Forth, I caught glimpses of the gigantic outline of the Forth Bridge against the sky. After leaving Inverkeithing we climbed the few miles at 1 in 70, partly in tunnel, that lead to North Queensferry, where the platforms end on the north approach viaduct of the bridge, and for the next three minutes or so we travelled over this world famous structure through a continual maze of girders. Far below, on our right, were the ferry boats on the Queensferry Passage, and farther upstream we could see the large naval base, Rosyth.

Once over the bridge we were in Dalmeny station, where I alighted to change into the following Fife-Glasgow train. In this we branched to the right at Dalmeny Junction to join the original Edinburgh and Glasgow Railway at Winchburgh Junction, and follow it to Queen Street Station.

This route is very straight and level, but although well planned it is so high up at Cowlairs, 1½ miles from Queen Street station, the terminus, that it slopes

(*Continued on page 492*)

Air News

By John W. R. Taylor

Armoured Propeller Blades

Metal propeller blades made by the American Hamilton Standard company can be coated with a layer of nickel, a few thousandths of an inch thick, to protect them against damage from stones, debris and water spray. Applicable to either solid aluminium or hollow steel blades, this new "armouring" has proved its worth in more than 2½ million hours of military and civil operations.

Nickel-coating was first applied to the propeller blades of Mariner flying boats to overcome the eroding effect of water spray. Later, it was used to reduce damage from stones thrown up by C-119 Packet transports operating from rough forward airstrips in Korea. More recently, a Martin 404 air liner, fitted experimentally with one armoured and one uncoated propeller was taxied accidentally into an area where the runway was covered with loose rock. In the resulting fusillade of stones sucked up into both propellers, the unprotected blades sustained extensive damage, while the armoured blades were virtually unscratched.

Helicopter rescues Lightplane

Soon after landing on a frozen lake in Quebec, a ski-equipped Cessna lightplane hit a patch of half-melted ice and sank through the surface. Hearing of the mishap, the Royal Canadian Air Force sent a Vertol (formerly Piasecki) H-21 Workhorse helicopter of No. 108 Communications Flight to the rescue. A sling was fixed around the fuselage of the Cessna, after which the tandem-rotor H-21 lifted it cleanly out of the hole in the ice and lowered it safely on to firmer ground.

A Royal Canadian Air Force Vertol helicopter retrieving a Cessna lightplane which had gone through the ice of a frozen lake at Quebec. R.C.A.F. photograph.

Last R.A.F. Sabres

The last of the F-86 Sabre jet fighters which have been in service with the R.A.F. since 1953 have now been replaced by Hawker Hunters. Between 300 and 400 Sabres were supplied under a joint U.S.-Canadian mutual aid arrangement, at a time when the R.A.F. badly needed some swept-wing fighters. They equipped 12 R.A.F. squadrons and logged a total of more than 120,000 flying hours, equivalent to some 48 million miles. The first, and last, squadron to fly Sabres was No. 3, based at Geilenkirchen in Germany.

Lives Saved by Auster

One of the Auster lightplanes which spends the summer months giving joyrides to holidaymakers at Cleethorpes saved many lives in Africa earlier this year. It was hired originally by the Sudanese Government for "sky-shouting" duties after a mutiny of part of the Sudan Defence Force. Day after day, it cruised low over the southern part of the country, telling the people by loudspeaker to return to their villages from the bush, where they were hiding, and that only those who had committed crimes would be punished.

The messages were broadcast in many different languages with the help of a tape recorder, and over all sorts of country, from the Imatong mountains with their rain forests and rushing streams, over the Nile swamps and thousands of miles of bush country to the borders of French Equatorial Africa.

Just as this job was finished, a bad smallpox epidemic broke out in the vast swamplands in the Sudd region of the Nile, much of which is inaccessible to ground vehicles. Once more the sky-shouting Auster got to work, telling natives to go as quickly as possible to the nearest dispensary for vaccination. In the first area visited 2,000 Sudanese queued up for treatment before the dispensary opened. But for the Auster, half the populations of some villages might have died.

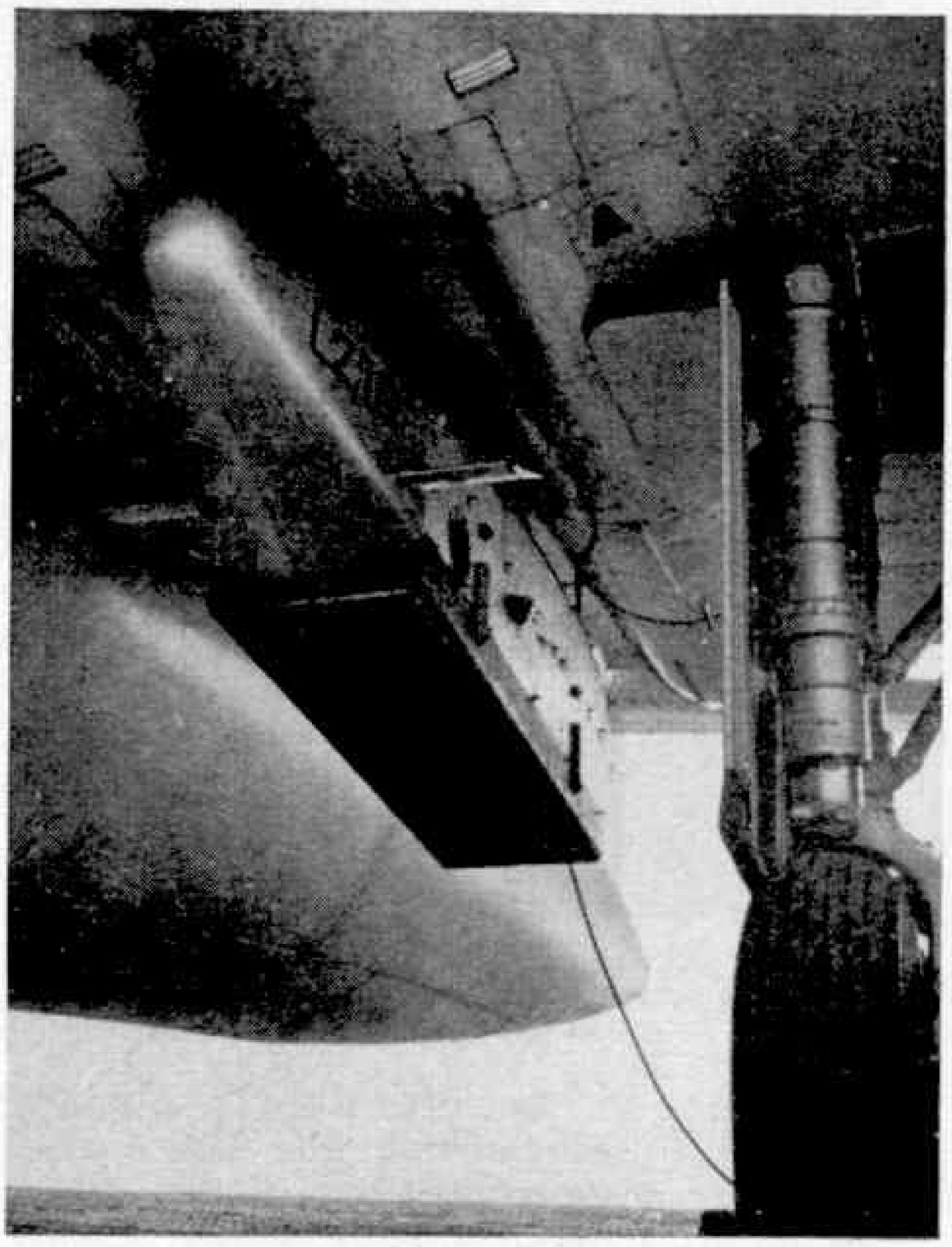
Fighter has Two-Position Wing

A unique feature of the U.S. Navy's 1,000 m.p.h. Chance Vought F8U-1 Crusader fighter has been taken off the secret list. As most of you will know, an aeroplane wing gives most lift when inclined at an angle of several degrees to the airflow. Unfortunately, the greater this angle of incidence, as it is called, the greater is the aircraft's drag during high-speed flight.

To get the best of both worlds, Chance Vought have fitted the Crusader with a two-position wing that can be pivoted about the trailing edge, so that the angle of incidence is increased considerably for take-off and landing. As a result, when the Crusader comes in to land, its fuselage remains more horizontal than that of other high-speed aircraft, giving the pilot a better forward view and enabling the undercarriage to be kept short. During flight, the leading edge is flush with the top of the fuselage, so that there is no loss of high-speed performance.

"Aloft" in a Barge

Passengers at Schiphol Airport, near Amsterdam in Holland, are often surprised to see barges sailing past on a higher level than their aircraft. The reason is that the airport is 13 ft. below sea level and is



D.H. Super Sprite jettisonable pod containing rocket motor, fitted under the port wing of a Vickers Valiant bomber. A similar pod is fitted under the other wing. Photograph by courtesy of de Havilland Enterprise.

surrounded by a dyke which holds back the waters of the Ringvaart canal.

Automatic Landing Approach

Viscount Series 700 turboprop air liners fitted with the Smiths S.E.P.2 automatic pilot are now permitted to make fully-automatic landing approaches to within 200 ft. over the runway in calm or turbulent conditions. This means that the auto-pilot can be linked with radio aids in such a way that the aircraft will be lined up with the runway completely automatically in bad weather, leaving the pilot responsible for only the final touch-down. The result will be greater safety and fewer second-attempt landings.

Pilotless Meteors

Large numbers of obsolete fighter aircraft are being converted into pilotless "drones" to serve as aerial targets for air-to-air and surface-to-air guided missiles in this country and Australia.

First to be used were Firefly U.Mk.8's, which were basically the same as the three-seat Firefly T.7 trainer. Now, Firefly Mk.5 aircraft are being modified into U.Mk.9 drones and Meteor F.Mk.4 and F.Mk.8 jet fighters into U.Mk.15 and U.Mk.16 drones respectively. The Mark 15 version is illustrated below. All of these machines retain their normal cockpit and controls for test and delivery flights, but have extensive radio equipment for remote control from the ground during missile firing trials, when they are of course unpiloted.

The Firefly drones can be recognised by their red and cream warning colour scheme and by the cigar-shaped tanks on their wing-tips, containing cameras to photograph the tracks of missiles fired at them. Similar camera-pods are fitted to the Meteors, which are being converted by Flight Refuelling Ltd.

Assisted Take-off for Valiants

To enable them to take off quickly and safely with a very heavy load of bombs and fuel, the Vickers Valiants of R.A.F. Bomber Command are able to carry a de Havilland Super Sprite liquid-fuel rocket-motor in a pod under each pair of their Avon jet engines.

The Super Sprite develops 4,200 lb. of thrust for 40 sec., so that two give the Valiant nearly 25 per cent. more power for take-off. When the rocket fuel (hydrogen peroxide and kerosene) has been exhausted, the Super Sprites are jettisoned by the pilot. This is normally done at a height of 700–1,000 ft., while the bomber is climbing at about 250 m.p.h., and the motors are lowered gently to the ground under an automatically-opened parachute, so that they can be collected and used again.

Atomic-Powered Aircraft

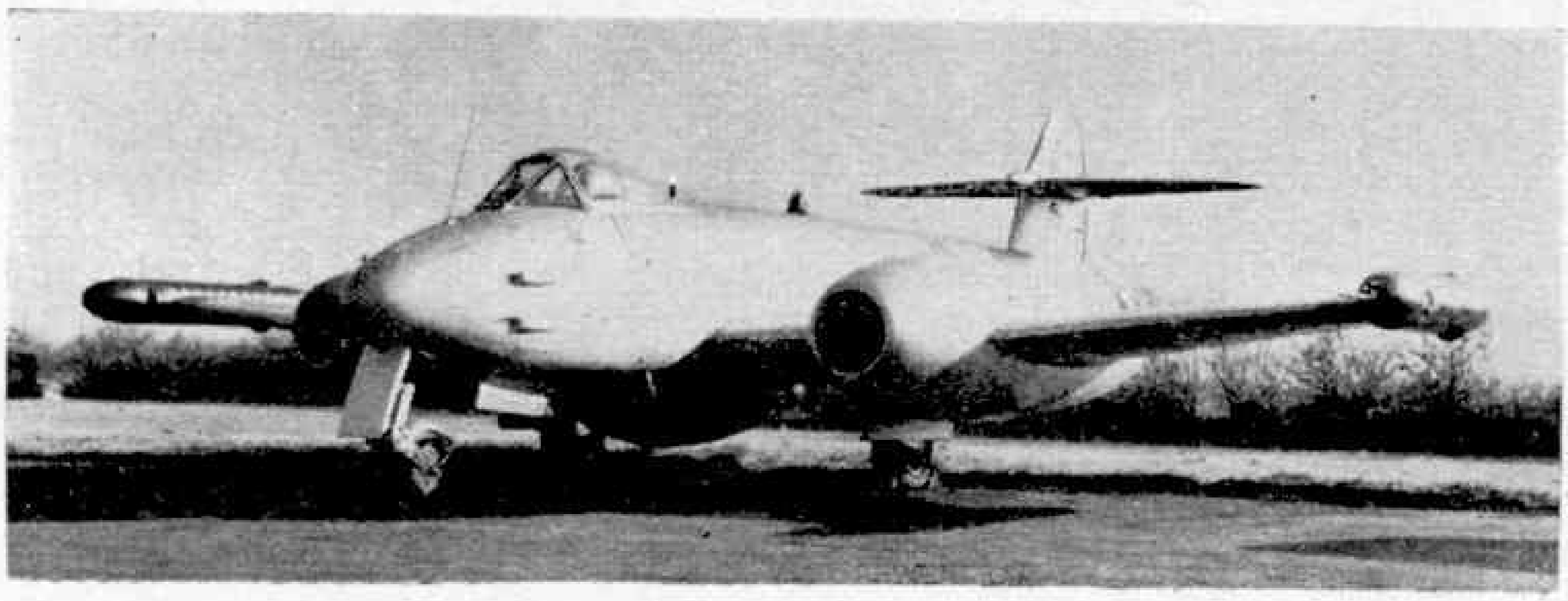
Convair have been awarded a U.S.A.F. contract to design an aircraft powered by an atomic engine. No details are available; but they have been working on a nuclear power research programme since 1951 and have flight tested a B-36 bomber equipped with an atomic reactor of their own design. This reactor does not power the aircraft, but is started up during flight to study problems of shielding the crew and equipment against radiation, the effect of radiation on the aircraft and its systems, and to develop airborne nuclear instruments.

Whenever it flies, it is accompanied by a transport aircraft loaded with paratroops, who would cordon off the B-36 if it crashed or made a forced landing away from its base in Texas.

Britain's Flying Police

The Lancashire County Police Force have hired light planes on many occasions in recent years to ease their road traffic problems. At the time of the annual Grand National steeplechase, for example, police officers usually keep an eye on crowds streaming towards Aintree, reporting any threatened traffic jams by radio to patrol cars and motor cycles on the ground.

When the Queen visited Lancashire this year, the Royal party's procession of cars was followed by a circling Auster, which radioed their progress to police cars in the area.



Meteor U.Mark 15 target drone that before modification was a Meteor F.Mark 4 jet fighter. Photograph by courtesy of Flight Refuelling Ltd.

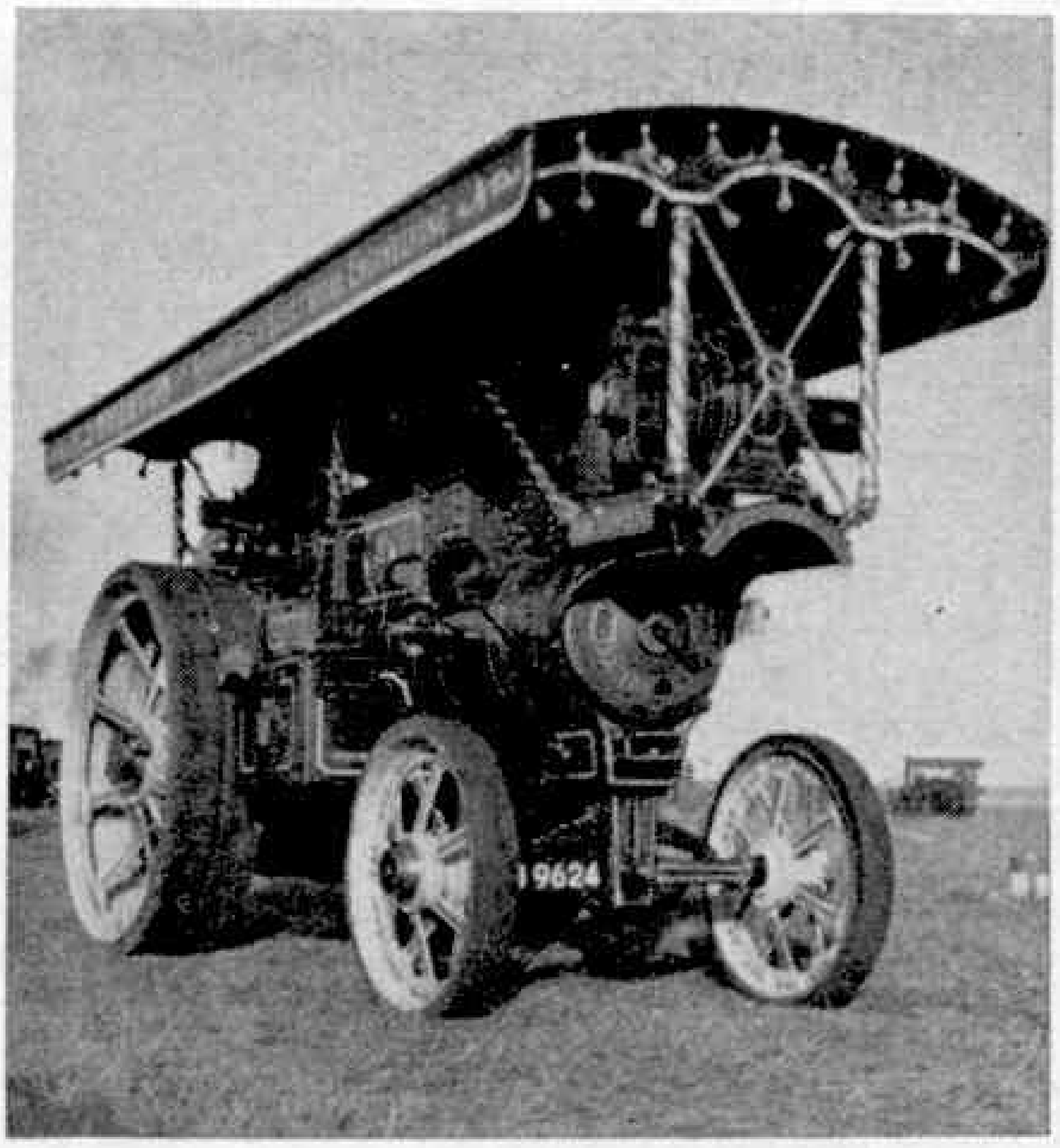
Steam Traction Engine Rallies

By I. J. Belcher

TRACTION engine rallies have undoubtedly reached great popularity since the first event of this kind at Appleford, the story of which was briefly told in the *M.M.* for February last. Rallies at various places throughout the country are now listed by the National Traction Engine Club. Of these the premier attraction is the Appleford event, held in June each year. Unfortunately this usually coincides with torrential rain!

This year the rally was billed to take place in Abingdon, a historic market town four miles from Appleford, and was to be part of the town's celebrations to commemorate the fourth centenary of the granting of its charter by Queen Mary. Although seemingly always blessed by rain, this June rally was without doubt the worst experienced so far, and after 48 hours continuous rain immediately prior to the great day, 9th June, it had to be postponed.

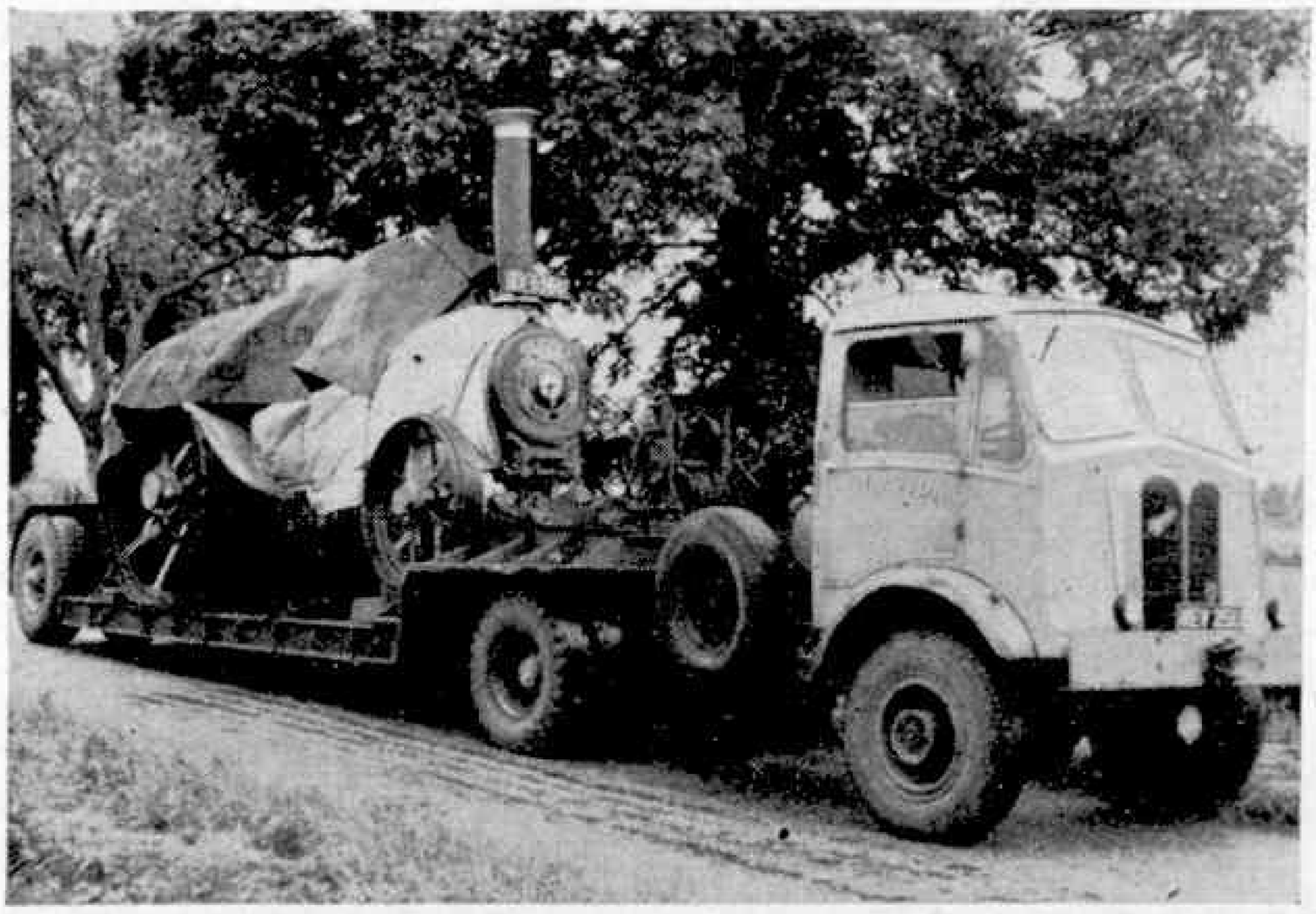
Conditions at the site were appalling throughout the morning, and heavy engines became bogged down in a sea of mud at both entrances. An early victim of conditions was *Kitchener*, the 16½-ton showman's engine featured in the June



A Burrell 1913 engine owned by Mr. S. J. Wharton, of Minster Lovell. It is a very good example of a showman's engine.

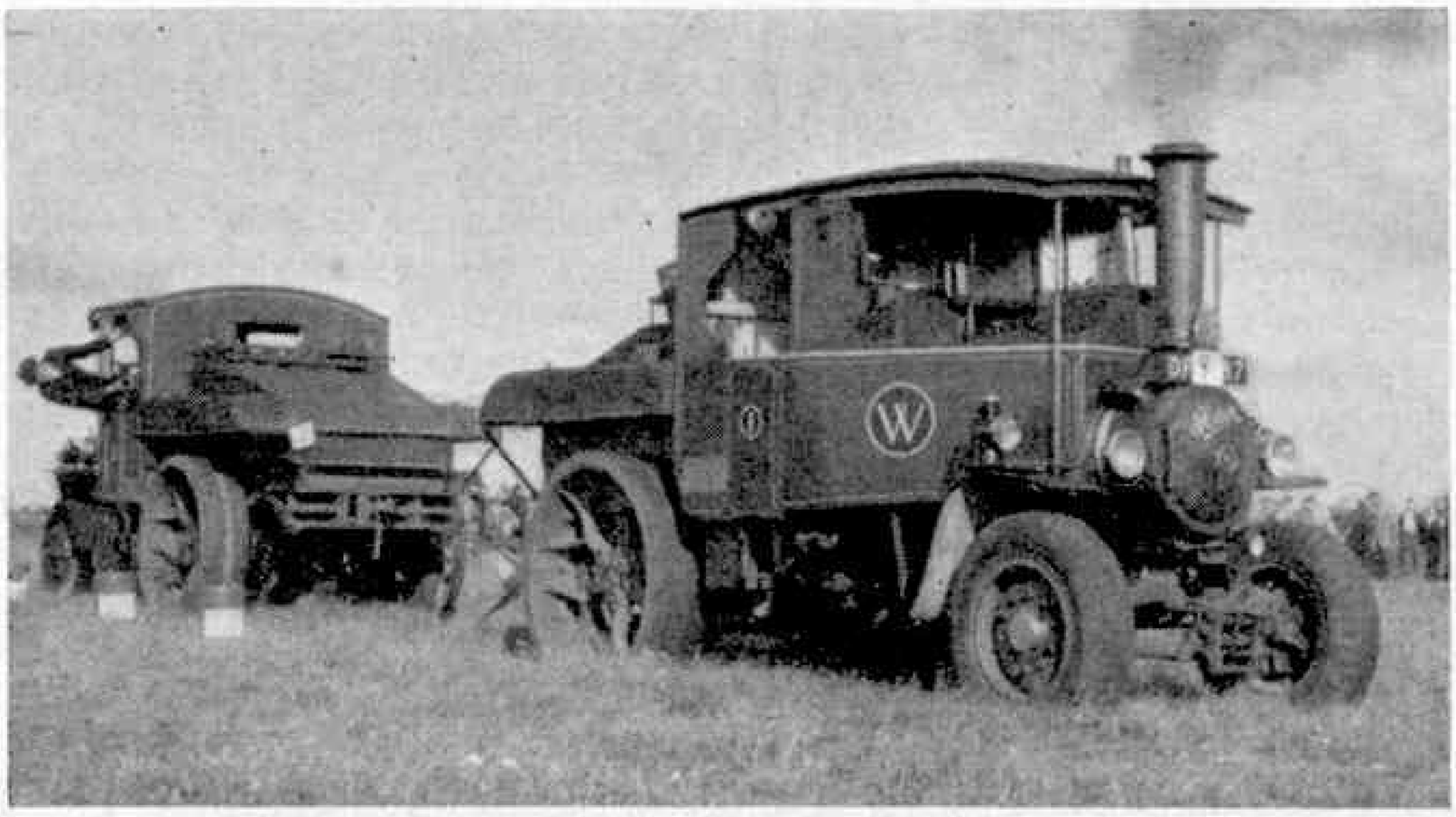
M.M. in an article by its owner, Mr. John Crawley of Bedford. This engine and others were rescued by a Foden steam tractor, from Andover, appropriately named the *Mighty Atom*. This 8-ton 1932 vehicle did great work during the day and helped many stranded colleagues through the entrance—including a mobile fish and chip van!

Spectators arriving had an opportunity to see these interesting happenings, and to view the engines at close range, even though they were denied the spectacle of racing. Engines were arriving throughout the morning both by heavy lorry and under their own steam. At least two made the journey by low-loader from Essex and one from Bournemouth. *King George VI*, a superb showman's engine belonging to Mr. Wharton of Minster Lovell, Oxfordshire, was displayed throughout the afternoon in Abingdon's Ock Street, a very wide thoroughfare on the Oxford-Newbury road; and its sparkling appearance and illuminated top created great interest among the locals and holiday makers passing through on this dismal day.



How a rally engine made the journey from Essex to Abingdon. Some engines travel to rallies under their own steam, spending two or three days on the road.

The rally will now take place at Appleford this month, most likely on 15th September, and at the usual site. It was a sad day for the club. In addition to its own losses, several hundred pounds were lost to charity from admission charges. A coach load of enthusiasts made the journey from St. Ives, Cornwall, over 200 miles away, only to find the event cancelled.



Tug-of-war between two Fodens.

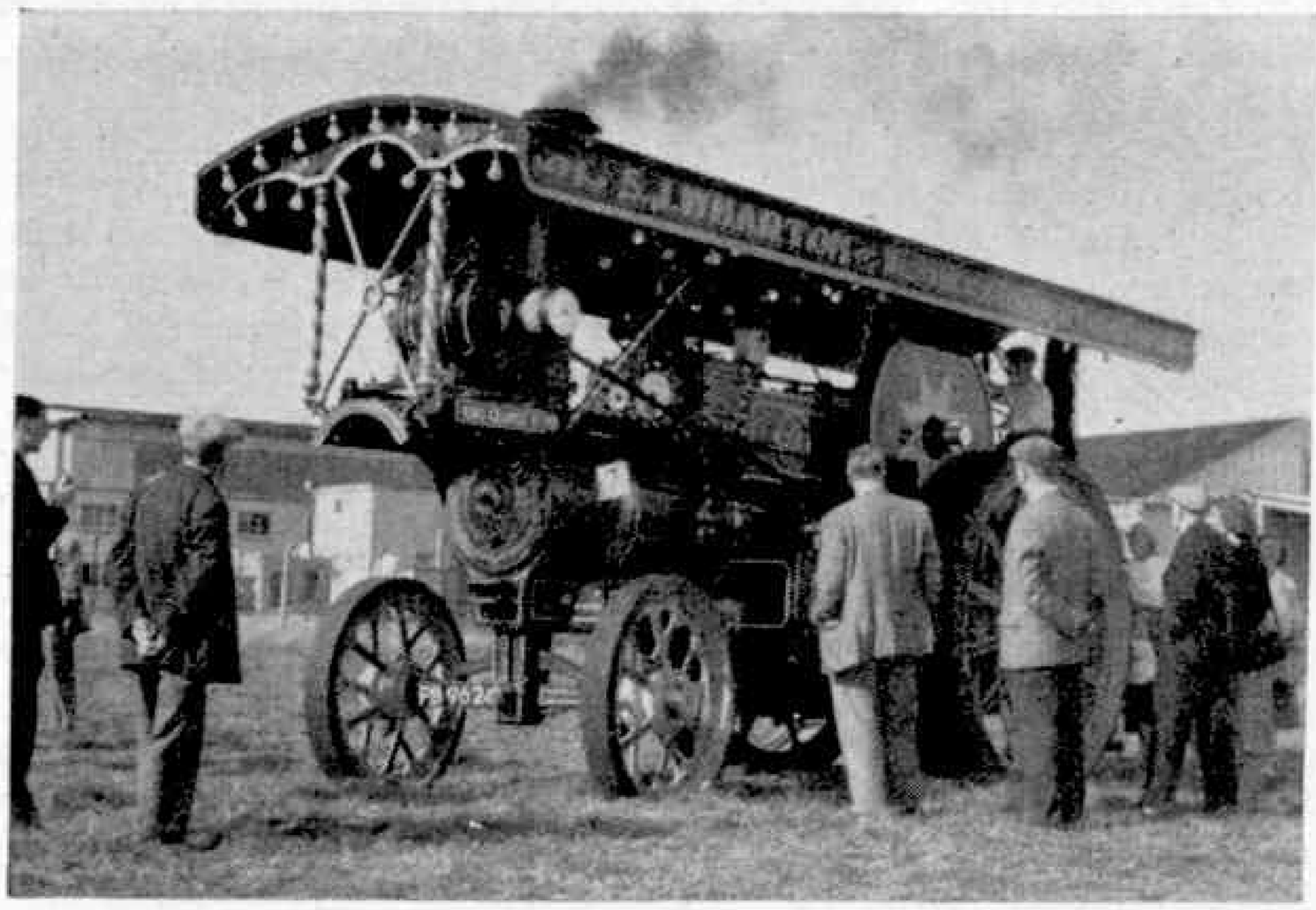
On this month's cover is *Norah*, a fine engine pictured at Witney during a rally. She was built in 1919 by Messrs. Chas. Burrell and Sons Ltd., and worked for many years in Devonshire, later becoming the property of a Mr. Vines of Hardwicke, nr. Gloucester. At the time when the photograph on which the cover is based was taken, she was in the hands of Mr. Nichols of Gloucester, but now has another owner, appearing at the Andover rally in May this year under the name *Red Gauntlet*.

Transportation to rallies is a most difficult and costly business for owners. Often a journey involving two or three days on the road under their own steam is necessary. The low loader lorry favoured for the long trips can be expensive, and entrants at these events have to bear the cost of conveyance themselves.

Large engines such as Mr. J. P. Bury's *Britannia* can be a headache in any circumstances on today's roads, weighing approximately 17 tons. This magnificent road locomotive was owned for many years by Mr. William Thurston and travelled the Eastern counties, hauling and providing power for travelling amusements. Since Mr. Bury of Great Tew bought it in 1946, it has been dismantled completely, re-built and painted to look as new.

It is by no means unusual for one to hear of enthusiasts boasting several engines in their collection. One member of the club, the late Mr. C. W. Lambert of Horsmonden, Kent, prior to his death last year, was the proud owner of 30 steam engines and rollers. He even organised his own rallies!

Steam has indeed been re-born in this atomic age as an entertaining hobby and sport appealing to thousands of people of all ages, many of whom will have an opportunity to witness rallies in their own districts, perhaps for the first time, in the near future. Already there are over 500 members in the National Traction Engine Club, which has its headquarters at 56 Bedford Square, London W.C.1. The subscription is 10/– a year, and an interesting illustrated club news sheet is published at intervals. Club ties, car and engine badges and lapel badges are available to members.



King George VI is the centre of attraction at a rally at Witney.

Road and Track

By Peter Lewis

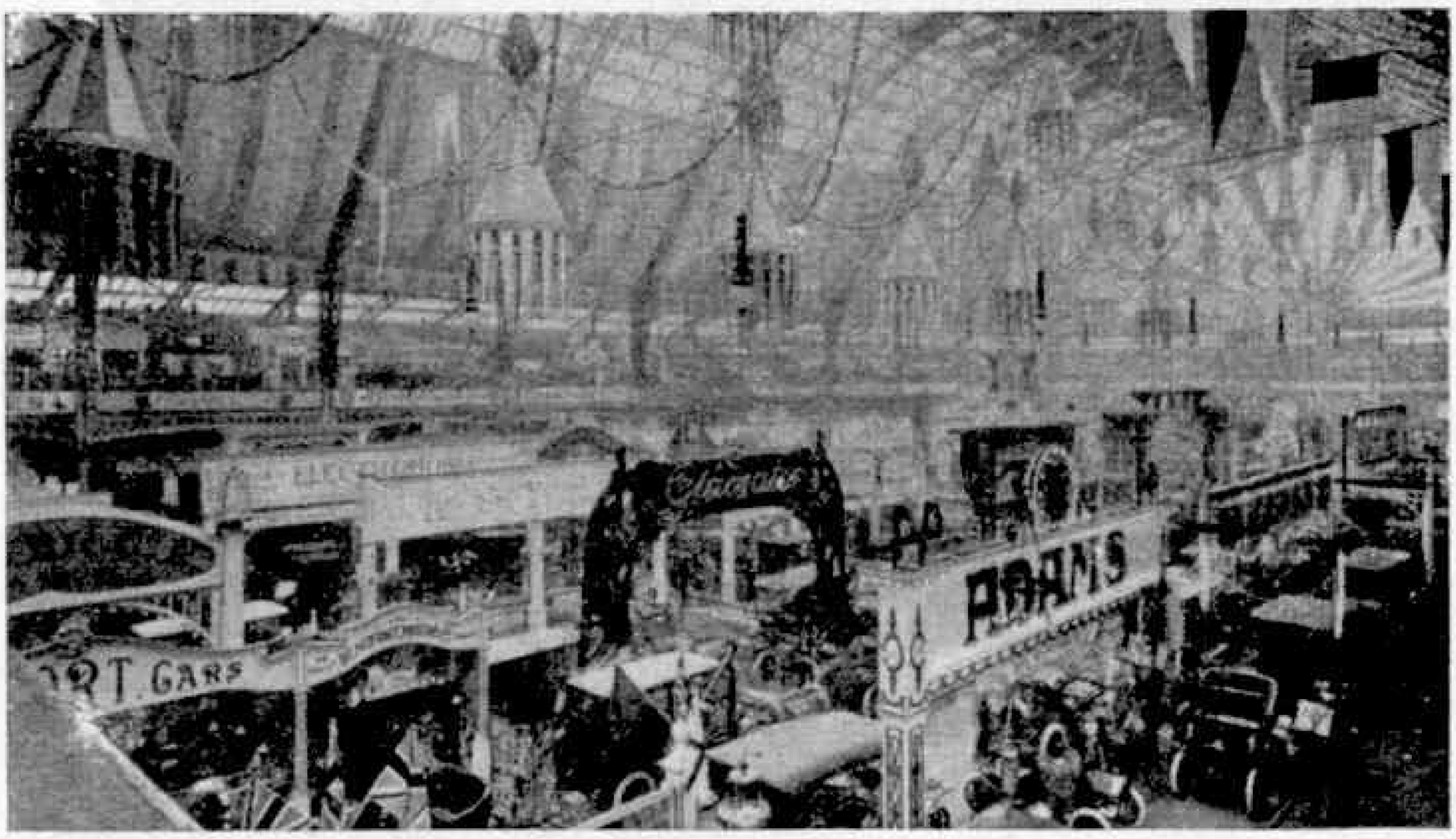
THE first Motor Show of the Society of Motor Manufacturers and Traders was held at the Crystal Palace in 1903. One hundred thousand people examined and enthused about or criticised the new fangled machines, which were shown by two hundred of the world's leading manufacturers. Trial runs were quickly arranged, once the salesmen were convinced that they had a prospective buyer and not a joy rider, and a large fleet of cars was held in readiness.

There had been a Horseless Carriage Exhibition as far back as 1895. It was organised by Sir David Salomons, Mayor of Tunbridge Wells, Kent, with Mr. F. R. Simms as one of his helpers, and there the stolid British public was invited to watch vehicles in motion at the Tunbridge Wells Agricultural Show Ground without horses pulling them.

The list of exhibits in this epoch-making event included "a Carriage by Messrs. Panhard and Levassor of Paris, with Daimler petroleum engine . . . a Fire Engine for a country house, worked by a Daimler petroleum engine . . . . a tricycle worked by petroleum motor, with electric spark ignition, shown by Messrs. de Dion and Bouton of Paris, and a steam horse attached to a carriage from the same Paris manufacturer."

All this is a preliminary to the 41st International Motor Exhibition, which will be held at Earl's Court 17th to 27th October. If you are fortunate enough to live near London, do try and pay a visit to Earl's Court for this great Exhibition, which will be attended by over half a million people.

The weekly motoring journals prepare comprehensive guides before the Show, followed by reports. I find that the most interesting way of visiting Earl's Court is to take one of these reports, or the official catalogue, and then proceed—aisle by aisle—to visit the various stands. So many people just dart about, backwards and forwards across the exhibition hall, confining their activities to admiring or criticising the general lines of the cars. Find out for yourself what is the most interesting aspect of a particular model, such as for instance the independent suspension on all four wheels of the A. C. Ace, and then learn all you can about it. And who knows? There may be a British rear-engined car or something equally exciting this year.



The Motor Show of November 1906.

I have no doubt that, with 1956 achievements in mind, many of you will spend more time on the Jaguar stands than anywhere else. This is understandable, for this Coventry-built car is one of the finest in the world. It offers remarkable performance, quality, and real value for money. No wonder Jaguars earn many thousands of dollars in the vital export markets.

A few weeks ago the firm placed one of the XK. 140 coupés at my disposal for trial. This was a special equipment model with twin overhead camshafts, and developing 210 b.h.p. I soon found that a very fast car such as this, developed in the hard school of competition motoring on circuits

such as Le Mans and Sebring, inspires a feeling of absolute confidence at say 80 m.p.h. that is sadly lacking in some cars I have driven at less than half this speed.

Make no mistake. Motor racing, in both the Grand Prix and sports car field, improves the breed. The steering, roadholding, brakes—and of course the power unit of the Jaguar—are proof positive of this fact.

The XK 140 sat firmly on the road no matter what the speed, or "line" through a corner. Precise steering, a restful seating position with the controls easily to hand, excellent visibility with both front wings in sight and a floor change gear lever that is a delight to use, made me most reluctant to rest myself or the car during 500 miles of motoring.

At Earl's Court last year.

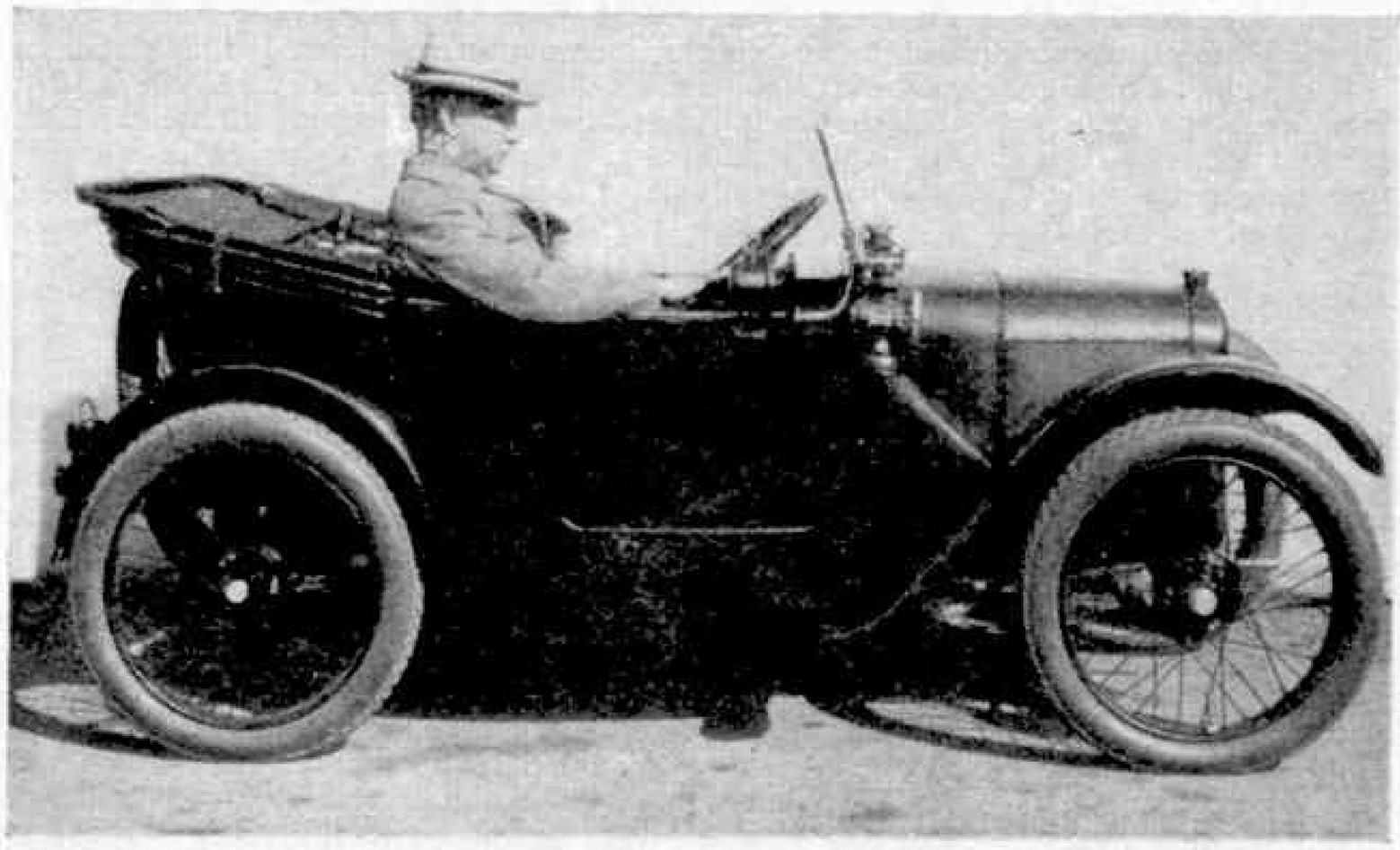
The Jaguar was not driven anywhere near its maximum of 130 m.p.h.—although on a perfectly straight piece of road near Ely, with open country on both sides, and no turnings, cart tracks or buildings that could provoke "incidents", we recorded 108 m.p.h. on the speedometer.

My main impression of the Jaguar is of phenomenal acceleration up to 80 m.p.h. From rest, through the gears, the car reaches this speed in just under seventeen seconds. We were able to put up averages exceeding 50 m.p.h. in perfect safety, observing speed limits meticulously and *taking absolutely no risks at all.* There was no need to, for with such acceleration, the various hazards we encountered could be dealt with patiently but rapidly. With its effortless yet exhilarating performance, allied with race-bred stability, steering and brakes, the car represents motoring in the real sense of the word.

A word or two now about a man who was born in London in July 1906, the son of a bank manager. He is Rudolf Uhlenhaut, one of the finest automotive engineers in the world and the man behind the successes of Mercedes-Benz Grand Prix and sports cars.

When last I had lunch with Stirling Moss in London, I asked him what he considered the secret of Uhlenhaut's success. Stirling replied, without hesitation, "If he was not satisfied with a driver's report on a car he would take the car out himself. He is in fact a designer who has the ability to drive his cars as well and as fast as some of the finest seeded international drivers."

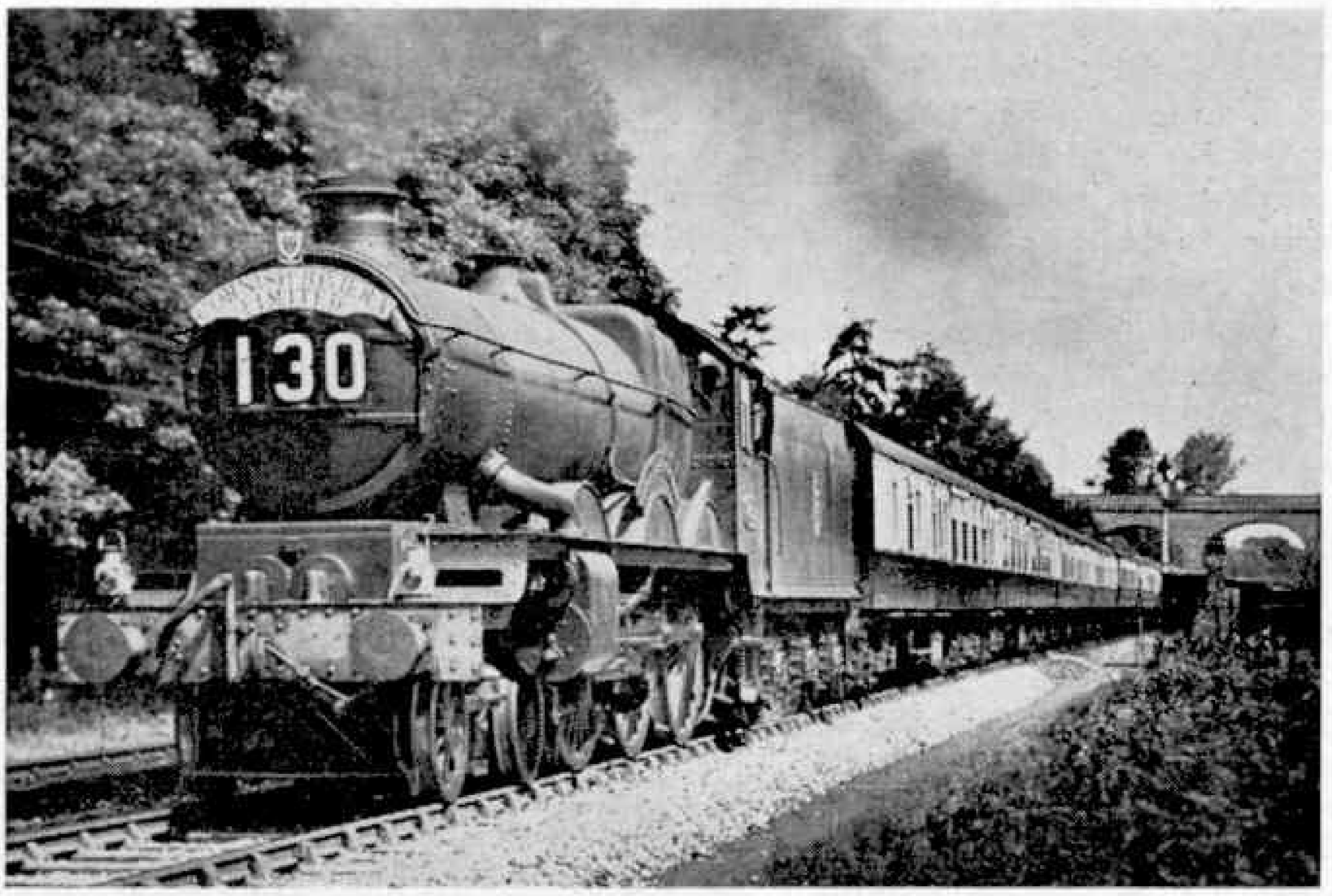
It all comes back to the old Army saying. "Never ask a man to do something you cannot do yourself." I wonder what Rudolf Uhlenhaut is designing now.



A 1922 exhibit at the Motor Show was the first Austin Seven, seen here with Lord Austin at the wheel.

Railway Notes

By
R. A. H. Weight



A striking photograph by M. W. Earley of the down "Cornish Riviera Limited" in W.R. livery near Reading West. The engine, somewhat unusually a Castle, No. 7031 "Cromwell's Castle," carries a new nameboard on the smoke-box front.

Aboard Famous W.R. Expresses

The long established *Cornish Riviera Limited* between London and Penzance provides the fastest service of the day to or from Cornwall, and also (except westbound on summer Saturdays, when extra portions run) over the 226 miles between Paddington and Plymouth. There is no passenger stop within the latter journeys; if load and circumstances permit, they are actually made without a halt.

At North Road, Plymouth, where extensive rebuilding operations are in hand, I recently watched the London-bound express arrive punctually with *Llantilio Castle* at its head after travelling over the difficult course from Penzance and crossing the famous single-line Royal Albert Bridge into Devon. The bigger 4-cyl. locomotive *King James II*, to take us to London, backed down from Laira shed on to two spotless newly painted coaches which were to make up the load to 11, or just over 400 tons full.

No. 4998, *Eyton Hall*, was coupled in front of the King to assist over the tremendous gradients as far as Newton Abbot, and the complete double-headed train was away to time at 12.30. We rapidly gathered speed past Laira and Plympton to secure impetus for the gruelling 1 in 42 climb to Hemerdon summit, which pulled speed momentarily down below 18 m.p.h. Pulling hard here, coasting and braking there, through grand country, we stopped at the west end of the big junction station, Newton Abbot, for barely 2¼ min. Meanwhile the "extra horse" had been detached and crossed to another track.

All signals were clear for the 194-mile run on to Paddington, covered in 197½ min., including a severe slowing owing to track repair work, an average of 63 m.p.h. for 145 miles, with a maximum of 80. The *Riviera* gradually gained time, coming to a stand in the London terminus 6 min. early at 4.34 p.m., equivalent to a non-stop unchecked journey from Plymouth in less than four hours.

The noon *Torbay Express* from Paddington, "booked seats only," was a handsome 8-coach train, making about 300 tons behind the tender of *Donnington Castle*, a 31-years old 4–6–0, though smart and capable. The schedule to the first stop, at Exeter, requires an average of over 60 m.p.h. for 173¼ miles. Extra slowings for signals and on account of repair work caused a loss of more than 8 min. though every effort was made to regain time, including a sustained 86–87 m.p.h. down the descent towards Westbury, Wilts., and some fine uphill work, so that we were only about 4 min. late at Exeter. Thereafter, while traversing the delightful stretch of line by the sea, and then branching off beyond Newton Abbot on to the steeply graded Torbay branch, more minutes were won back, giving a punctual arrival at Torquay by the fastest train at 3.35 p.m.

It was a pleasure to thank and congratulate the respective engine crews stationed at Laira and Newton Abbot. Both trains were formed of quite modern, most comfortable rolling stock, lately repainted in chocolate and cream style, with embellished train name boards to match. The service within rendered by the restaurant car staffs and the travelling carriage cleaners, for example, added considerably to the enjoyment of memorable journeys.

Locomotives in the News

This month new locomotives to report are Nos. 92082–6 of the big 2–10–0 type allocated to 15A, Cricklewood; Nos. 80137–8, class 4 2–6–4Ts, to 34E, Neasden; Nos. 73125–6, class 5 4–6–0s, were built at Derby for Western Region service, as were diesel-electric 0–6–0 shunters Nos. 13258–62. Others of the latter type added to stock were numbered and stationed as follows: Nos. 13245, 5B, Crewe South; 13246–7, 16A, Nottingham; 13248–50, 17A, Derby; 13251–4, 19A, Sheffield; 13309–12, 34A, King's Cross. Six-wheeled diesel-mechanical: 11141, 32A, Norwich; 11146–7, 6C, Birkenhead; 11159–60, 35A, Peterborough. Diesel-mechanical 0–4–0; 11508, 40B, Immingham.

Appearance of several of the best known A4 Gresley streamlined Pacifics has been improved by the provision of a red background to their nameplates. The stud of Pacific engines at King's Cross depot has been augmented for the summer by transfer of some A3 4–6–2s from Doncaster or the G.C. Section At the time of writing Britannias from the G.E. Section are being overhauled at Doncaster Works, instead of Crewe.

Rebuilt Merchant Navy 4–6–2s have been hauling the *Atlantic Coast Express* including trials with dynamometer car attached, and other Waterloo-Exeter fast trains. No. 35022 *Holland-America Line*, another of the modified ones, stationed at Bournemouth, has been noted on the new long-mileage, Monday-Friday, duty making two journeys to London

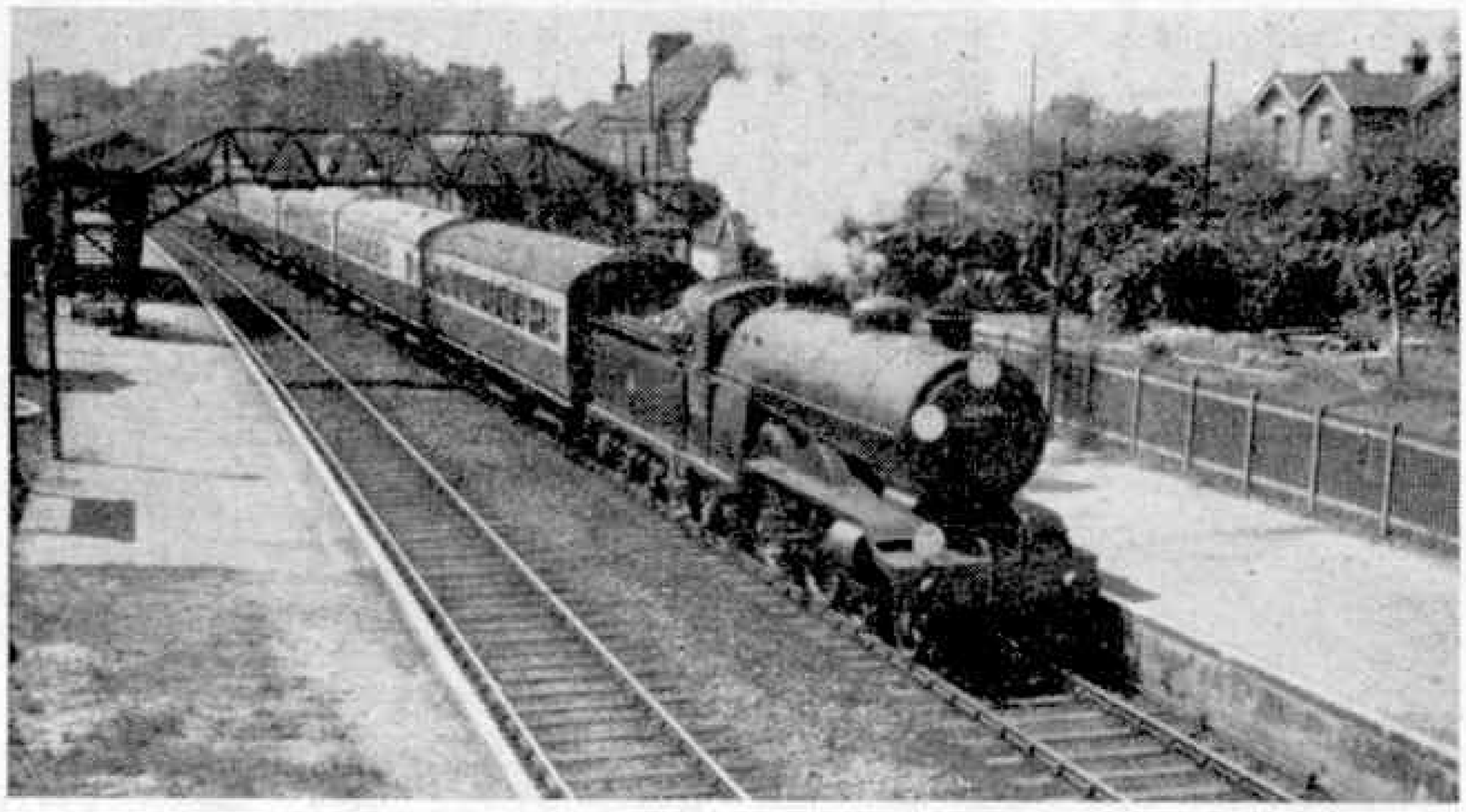
and back in the day including haulage of the down and up *Bournemouth Belle.*

W.R. No. 6002 *King William IV*, modernised with new boiler and double chimney like several others of the class has figured in fast trial runs on the *Cornish Riviera Limited.*

On the Southern Region Schools 4–4–0 No. 30907, *Dulwich*, has been painted green.

The unique 0–10–0 tender locomotive specially built by the former Midland Railway over 30 years ago to act as a banking engine up the steep 2-mile Lickey Incline on the main Bristol - Birmingham line, lately numbered 58100 and long known unofficially as *Big Bertha*, has made her last strenuous climbs. She has been replaced by a new 2–10–0 of the standard class 9 type, No. 92079. L.M.R. class 3 0–6–0Ts share some of the banking duties also. Three of the last named type, Nos. 47300, 47429 and 47458, were lately transferred rather surprisingly to Grantham shed on the East Coast main line, for shunting duties.

The G.N.R. J52 0–6–0 saddle tanks, familiar for many years, are gradually being withdrawn and disappearing.



S.R. No. 32425 "Trevose Head" a Brighton Atlantic on a Bournemouth-Brighton through train entering Hinton Admiral.. Photograph by G. O. P. Pearce.

Some Fine Runs Summarised

The 12.55 Saturday Kent coast express from Charing Cross, allowed 80 min. for the 70 miles to the first stop at Folkestone, is not quite so exactingly timed as the *Man of Kent* 4.15 departure. This calls at Waterloo (Eastern) to take up passengers, but on a recent trip Battle of Britain 4–6–2, No. 34084 *253 Squadron*, with a 10-coach, 350-ton train, reached Folkestone 1½ min. early. This included almost a dead stand for signals on the climb out through the London suburbs, costing 5 min., and an average of 67 m.p.h. from Knockholt to Shorncliffe, so improving on the fastest schedules along the route.

In the opposite direction, from Ashford, with a fuller 10-coach express, say 355 tons, *264 Squadron* without exceeding 74 m.p.h. passed Tonbridge, 26½ miles, in 26½ min., and would certainly have been at London Bridge, 54¼ miles, within an hour, regaining more than a 3-min. late start, but for final track repair and signal delays. Schools 4–4–0 No. 30929, *Malvern*, on a Saturday 9-coach Folkestone-Waterloo non-stop, starting 4 min. late and allowed 88 min., was easily punctual on reaching the London area and on into Charing Cross. I have recorded several more good Schools performances over the difficult London-Hastings course. Engines concerned included *Sherborne and Radley*, stationed at and manned by St. Leonards shed.

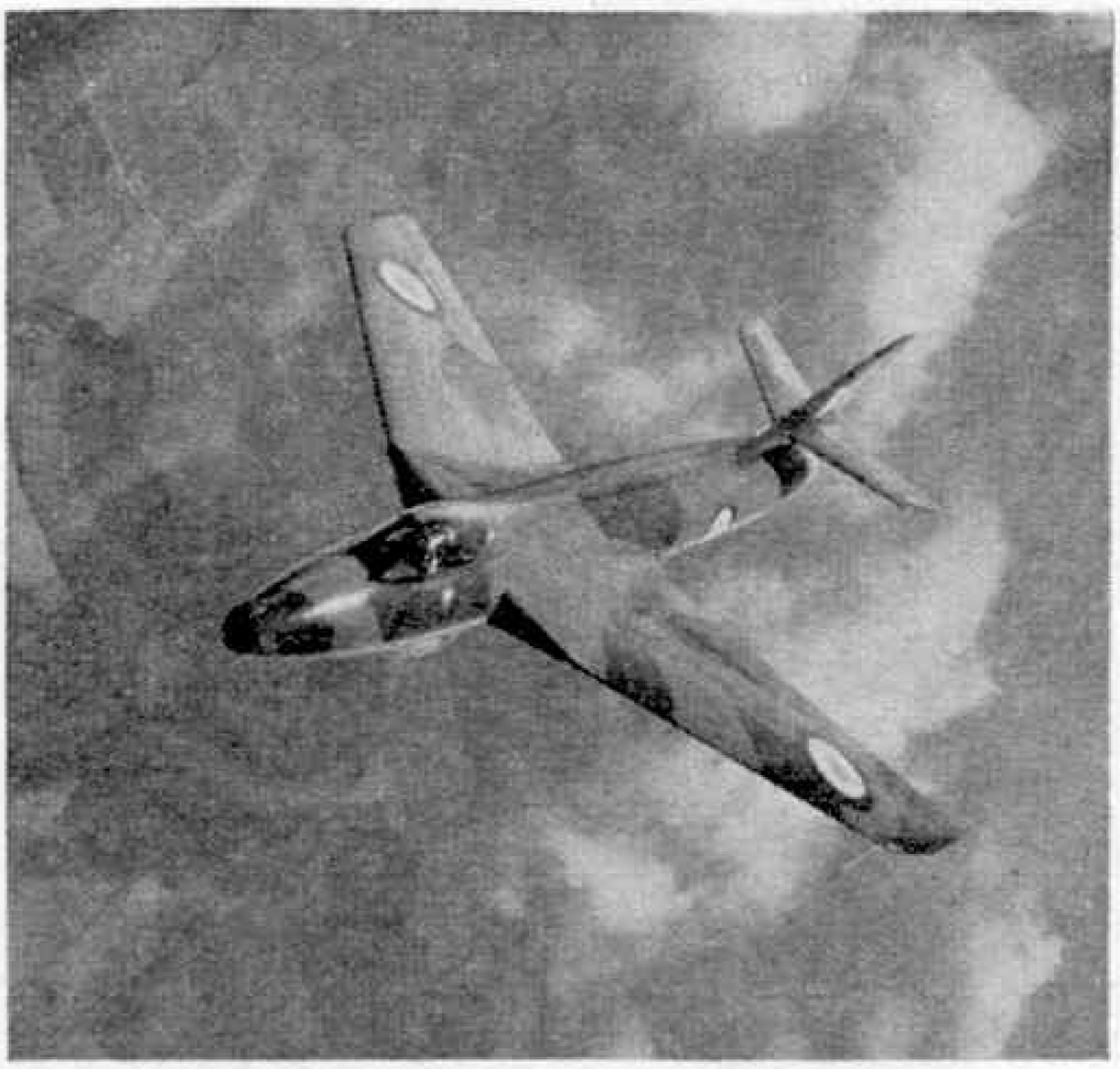
On the L.M.R. another bold effort similar to that reported last yea by the same Camden crew and Bushbury 6P, 3-cylinder, Jubilee 4–6–0 No. 45734 *Meteor*, was made on the Saturday 5.0 p.m. Birmingham-Euston, which has to make several stops and was heavily loaded for that class of locomotive with 13 on, or about 450 gross tons. Some of the coal on the tender was by no means of the best. There were severe slowings before the Northampton call, also on the long rise up to Tring. Nevertheless over 2 min. was gained by engine on balance, with running times throughout never far from schedule. The similarly loaded *Red Rose* Liverpool-London express is allowed only 155 min. for 158 miles Crewe-Euston start to stop. But with the advantage of haulage by No. 46236 *City of Bradford*, one of the big 4–6–2s, stationed and manned at Camden, it took no more than 153½ min. despite three track repair slacks, covering many stretches at 70 m.p.h. and over, with grand uphill work over the 15 miles from Bletchley to Tring.

No. 45734 "Meteor" on 4.5 p.m. Wolverhampton-Euston express at Birmingham (New Street), before the run described. Photograph by R. F. Roberts.

On the E.R. A4 4–6–2 60014 *Silver Link*, King's Cross engine and men, had a late start with the *Flying Scotsman* during July floods and was closely following another express also delayed by after effects of a severe thunderstorm in London. So there were a number of signal checks as well as several delays due to engineering or track maintenance work. Nevertheless the 268-mile run from London to Newcastle was made without a halt and with a minute or so in hand on overall timing, equalling an unchecked average of 60 m.p.h.

Messrs. Burley, Harvey, Roberts and Tibbett have kindly supplied details of certain runs.

How Good is the R.A.F.?



By John W. R. Taylor

BECAUSE the Royal Air Force has no fighters as fast as the U.S.A.F.'s 1,200 m.p.h. Lockheed F-104 Starfighter, and no bombers as big as the 180-ton Boeing Stratofortress, many people seem to think it is no longer in the same class as the American and Russian air forces. Nor do our newspapers do much to reassure their readers, because they appear to delight in publicising the gun-firing troubles of the Hunter and the aerodynamic problems of the Javelin, without explaining that the American aircraft industry has had equally serious setbacks.

Obviously, the persons best qualified to say whether aircraft are good or bad are the men who fly them and if you spoke to the pilots of R.A.F. Fighter and Bomber Commands, as I have done recently, you would soon discover that British aircraft are as good as ever.

The important point that so many people overlook is that Britain's defence problems are very different from those of the United States. If war broke out between the Communist and Western powers, we should be very much nearer to the enemy than would America. As a result, the R.A.F. does not need giant bombers like the Stratofortress, which is bigger than our "V" bombers mainly because it has to carry sufficient fuel to reach its potential targets all the way from bases in North America.

Similarly, fighters like the Starfighter and the Convair F-102 all-weather interceptor would be of little use to the Royal Air Force, because they need tremendously long runways from which to operate and a complex system of radar ground control. We do not have runways and radar of this type in the United Kingdom and, even if we had, they could be bombed and put out of action very easily in wartime, which would leave us defenceless. The Hunter, on the other hand, can fly from much shorter runways, with a minimum of ground control, which is made doubly important by the fact that the R.A.F. also has to operate in the Middle East where good runways and radar are even more rare.

The illustration above shows one of the Hawker Hunter F.Mk.6 swept-wing jet fighters now in production for the R.A.F. Photograph by courtesy of Hawker Aircraft Ltd.

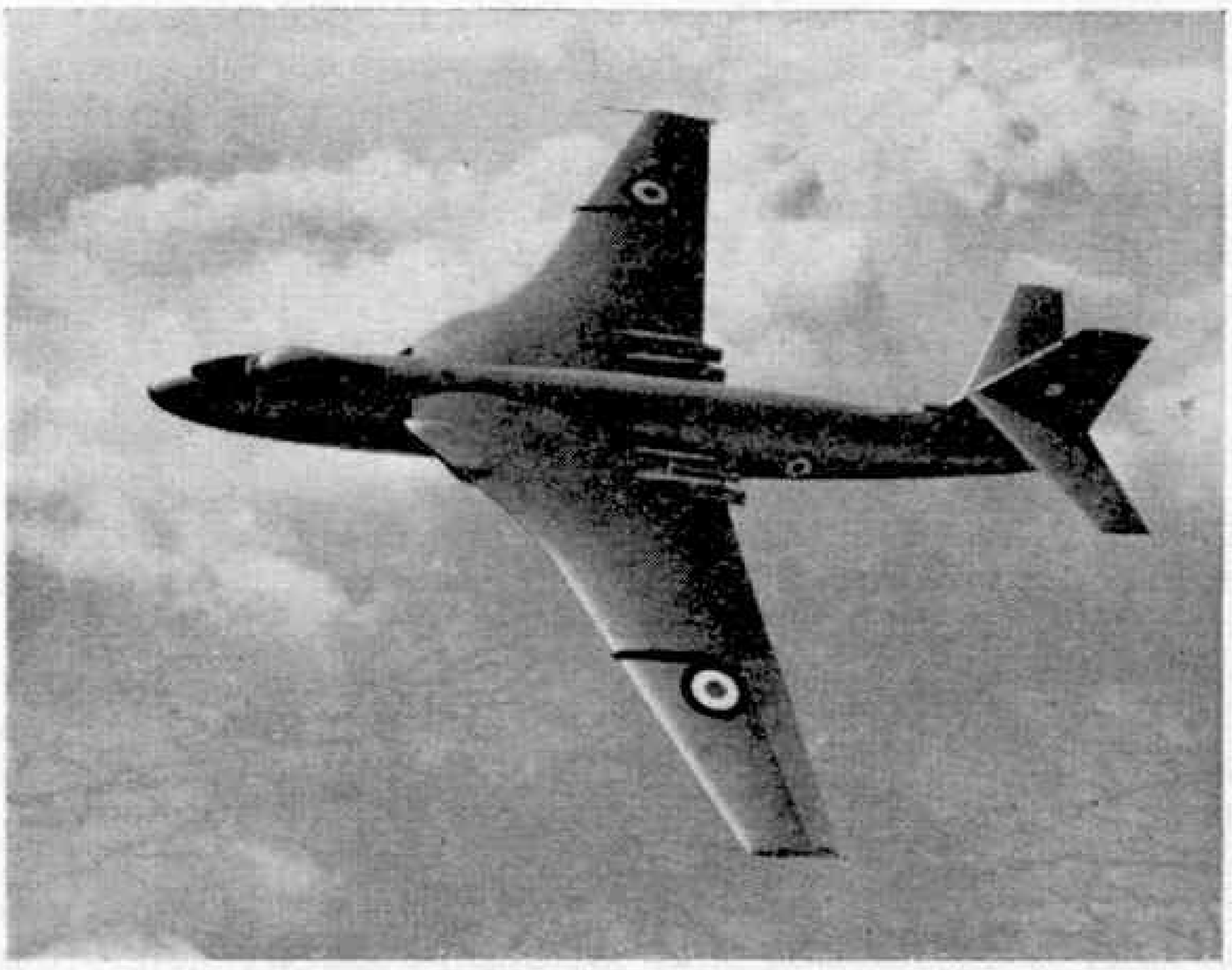
Every aeroplane is a compromise and, to achieve quick take-off and short landing runs, the Hunter had to sacrifice a certain amount of speed. Consequently, it can fly faster-than-sound only in a dive. But the latest Mark 6 version, with more powerful Avon engine and a "flying tail" in which the tailplane and elevators are geared to move together, is the best aircraft at present available for the specialised job of defending these islands.

It handles well, has sufficient range to intercept any bombers in service well outside our coastline, which is important in an atomic age, and has a terrific fire-power. Indeed, it is the great punch of the Hunter's four 30 mm. rapid-fire Aden

An impressive line-up of Vickers-Supermarine Swift F.R.5's of No. 2 Squadron, R.A.F., at Geilenkirchen, in Germany.

guns that has caused many of its problems, because it was designed originally to carry only two of them. As a result, when squadron aircraft fired their guns, the recoil proved so powerful that it sometimes cracked fuselage frames, and shook the camera gun off its mounting so that it fell into the wheel-bay and jammed the undercarriage up. Even worse, pressure was built up in the air intakes which caused the compressor of the Avon turbojet to stall, so that the pilot suddenly found himself with no engine power.

This trouble too has been overcome on the Hunter Mk. 6, and even the earlier Marks can now fire all four guns for the normal short bursts, or two guns for as long as the ammunition lasts, without risk of stopping the engine.



R.A.F. Vickers Valiant B.1 bomber. It is powered by four Rolls-Royce Avon turbojets.

Nor has the Hunter's one-time competitor, the Swift, fallen entirely by the wayside. In its F.R.Mk.5 version it is proving a very useful photo-reconnaissance aircraft, and another special Swift squadron will be the first R.A.F. unit equipped with Fireflash guided missiles. These air-to-air rockets can, of course, be carried by any fighters, and it is probable that the hundreds of Hunters ordered for service in NATO countries will be converted to carry Fireflash; but the R.A.F. is waiting for more advanced developments before switching to rocket armament for its fighter defence forces.

Side-by-side with Hunter day interceptors, Fighter Command has many squadrons of two-seat Venom and Meteor night fighters. These are a little slow by modern standards but, like all R.A.F. aircraft, are flown with such great skill that only the fastest bombers could hope to elude them. Already they are being joined by the first delta-wing Javelins, which combine long range with the ability to dive faster than sound, the latest radar search equipment and four Aden guns. Unfortunately, at its present stage of development, the Javelin's fighting power is limited by the fact that its pilots have to be careful not to stall it, as it might not pull out of the resulting spin. But this trouble should be overcome in due course and our night fighter crews are by no means scared of it.

Perhaps the only real criticism that can be levelled at our aircraft industry and the Ministry of Supply is that they have not tackled such problems more energetically, so that our latest fighters and bombers could be put

into full operational service more quickly. The aircraft which the R.A.F. is now receiving ought to have been in service two years ago, and the later types, mostly still secret, should already be in production.

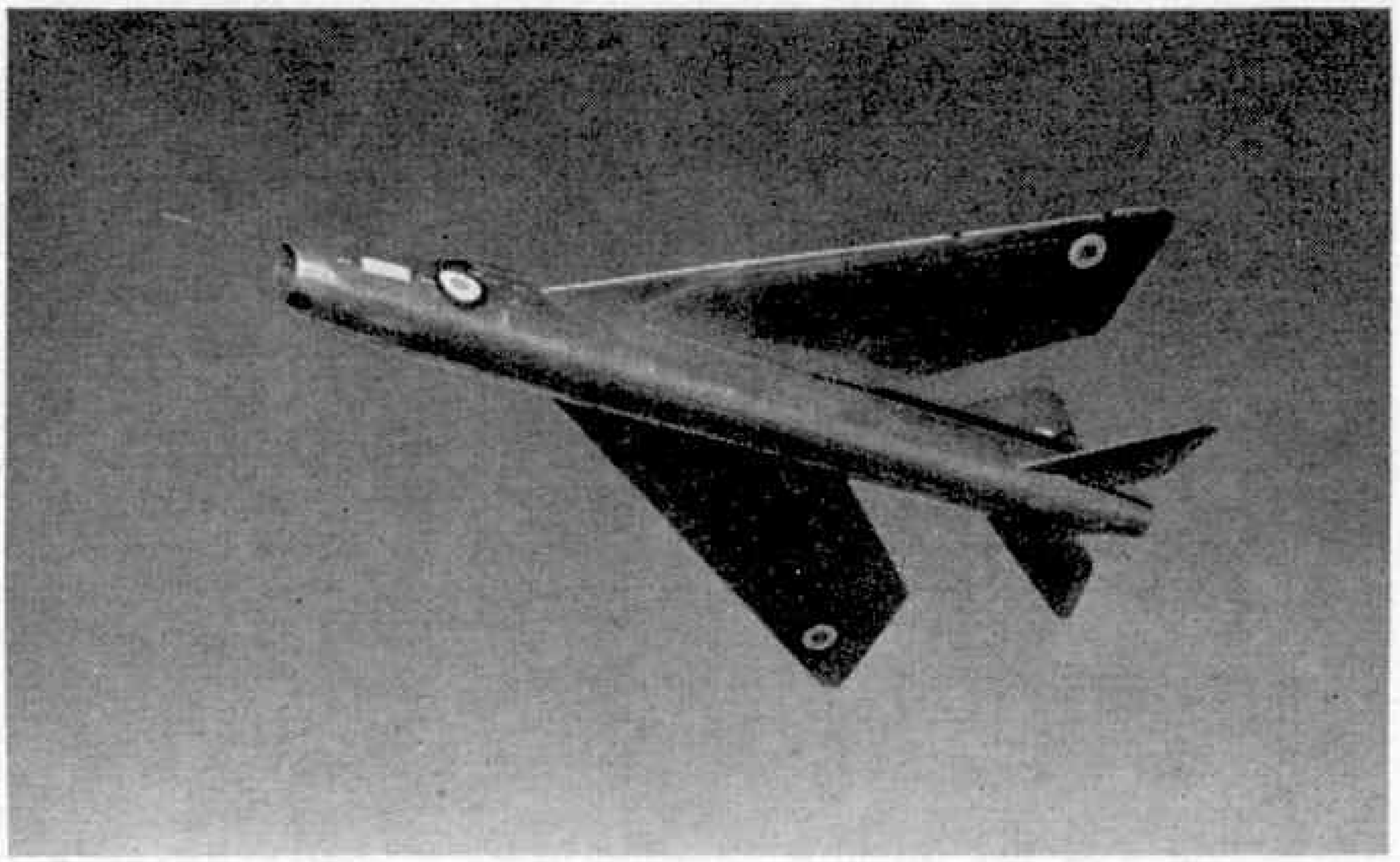
Bomber Command, for example, is still mainly a Canberra force, although the first three Valiant squadrons are formed and will soon be fully operational. In its class, as a short-range bomber, the Canberra is unrivalled; but until more "V" bomber squadrons are available we must continue to rely on the big bombers of the U.S.A.F.'s Strategic Air Command to keep the peace by the threat of overwhelming nuclear counter-attack.

The Valiant has begun to share the burden and, although actual performance figures are secret, its speed and cruising height are so great that it would stand a better chance of getting through to its target at night than any other bomber in the world. The Victor and Vulcan, which will enter squadron service next year, will fly even faster and higher, and will be almost impossible to intercept by present methods and equipment. Nor should they be any more difficult to fly than the Valiant, which one pilot described to me as being "like a great big Anson." In contrast, the U.S.A.F.'s Stratojet medium bomber is very difficult to land, because of its tandem-wheel undercarriage, although it must be remembered in fairness that well over 1,000 Stratojets are already in service.

When sufficient Victors and Vulcans have been delivered, the Valiants may be used mainly as flight refuelling tankers, for there is little doubt that the R.A.F. intends to use this technique as fully as the U.S.A.F. in future, to increase the range of its bomber force.

So, by the end of next year, Fighter and Bomber Commands should be equipped at least as well as any other air force in the world. And there are even better aircraft to come, such as the English Electric P.1, the Saunders-Roe S.R.53 jet-and-rocket interceptor and the new supersonic bomber under development by Avro.

Our reconnaissance squadrons are equally well-equipped with camera-carrying versions of the Swift, Canberra and Valiant, and the Tactical Air Force could ask for little better than the Venom F.B.4 fighter-bomber and Canberra B.(I.)6 and 8 night intruders. They would probably not be needed in a major war, which would be a short all-out slogging match between squadrons of long-range atom-bombers; but there will always be the need for a force of tactical bombers and ground attack aircraft because local, limited wars on the Korea pattern, or the need for "police" action as in Malaya, are far more likely than another world war.



This underside view of an English Electric P.1 jet fighter banking away during a test flight shows the sharply swept, angular wings and tailplane and the narrow fuselage. Photograph by courtesy of English Electric Company Ltd.

Flying Training Command has the finest-ever training team in its Provost basic and Vampire advanced trainers, despite the critics who said it would be murder to start pupils on a 550 h.p. aircraft. Indeed, first results achieved with the developed Jet-Provost, powered by a 1,750 lb. Viper turbojet and with the added complication of a retractable undercarriage, make it likely that the R.A.F. will go a stage further by adopting this aircraft and letting pupils fly jets from the start of their training.

Only Transport and Coastal Commands remain the "poor relations" of the fighting squadrons, equipped with obsolete and sometimes unpopular aircraft. This would be understandable if our designers had not produced a series of world-beating

(*Continued on page 492*)

MECCANO MAGAZINE

Junior Section

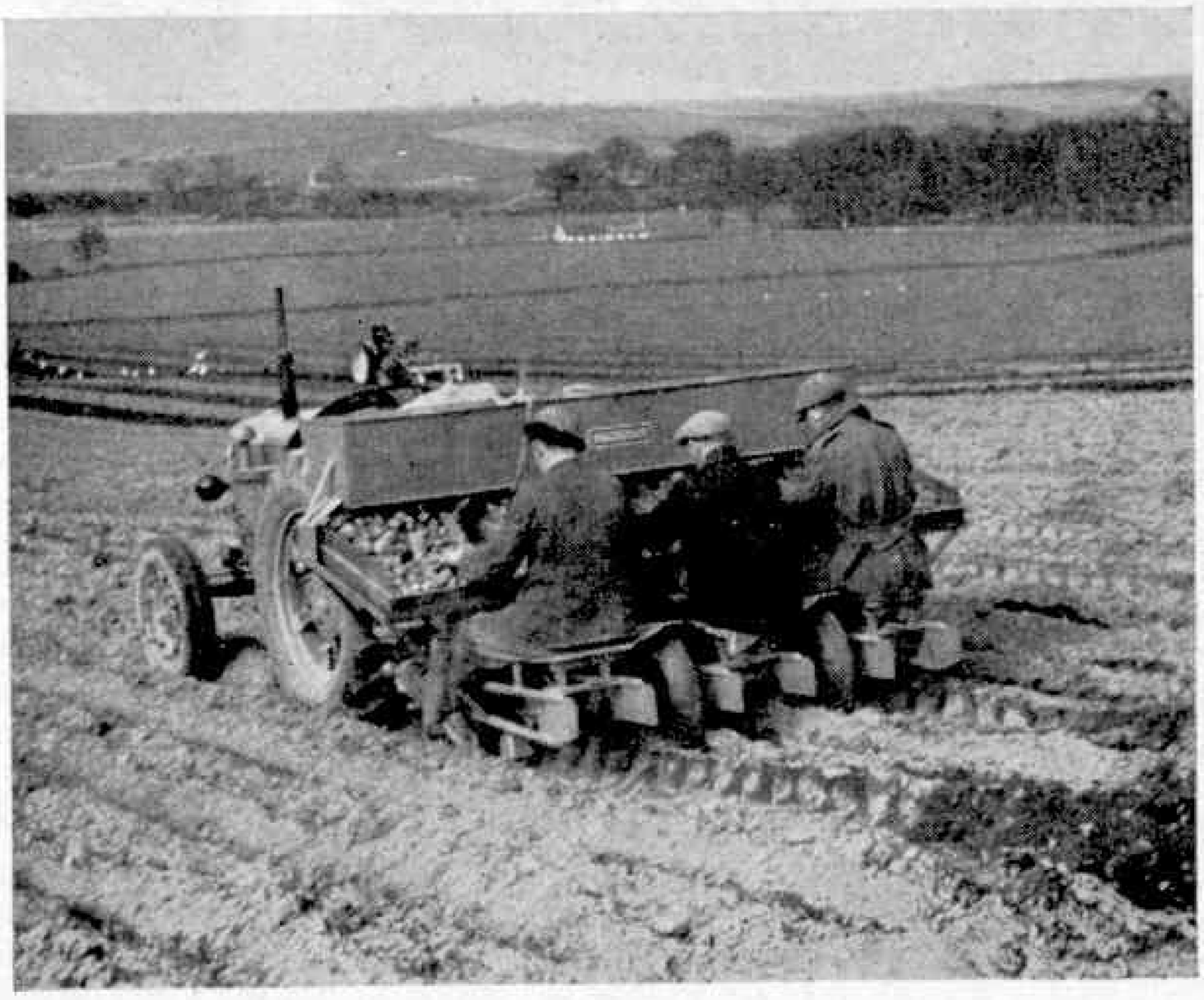
Peter Harrison, Northallerton, is happiest when he is building Meccano lorries and cranes.

LOOK at the picture below. This is really an action photograph, showing a tractor hauling behind it a potato planting machine, on which three busy men are seated. Apparently nobody is driving the tractor, but the planters do not seem to be at all perturbed.

It often used to be said that machines fell a long way short of horses for certain kinds of agricultural work, because the latter learned their own parts in many tasks, and could be left to carry on while the worker was free to control the implement it was drawing. Here is an example in which a machine can be left to itself, all because of a very simple device with which it is fitted.

The tractor is a David Brown Cropmaster. Like all David Brown wheeled agricultural tractors, it is fitted with a hand clutch. To the lever of this two pieces of rope are attached in the tractor seen in the picture, and one of the men can start the tractor by pulling the rope to engage the clutch or stop it by pulling the other. When the tractor reaches the end of the rows, he just disengages the clutch, and when the tractor stops he leaves his seat to turn it round. After resuming his seat he pulls the rope that engages the clutch and off goes the cavalcade with no trouble.

What about steering? I suppose most of you know the answer to that one. The wheels are directed by the furrows. In any reasonably level field the steering can take care of itself in these circumstances.



What, no driver? A David Brown Cropmaster steers itself along the furrows on the farm of Messrs. Hey, at Lawton, Inverkeilor, Angus. Photograph by courtesy of The Farming News, Glasgow.

Easy Model-Building

Spanner's Special Section for Juniors

Invalid Carriage—Three-wheel Sports Car

TO make each side of the frame of the Invalid Carriage shown in Fig. 1, you should bolt a 2½″ Strip 1 in the next-to-end hole of a 5½″ Strip 2. A 2½″ Stepped Curved Strip must be bolted between the Strips 1 and 2, as shown, to strengthen the assembly. The sides are connected together by two 2½″×½″ Double Angle Strips marked 3 and 4 in Fig. 1. Double Angle Strip 3 supports the seat, which is made from a Trunnion and a Flat Trunnion bolted together, while two Fishplates attached to Double Angle Strip 4 are used as footrests.

The rear wheels of the model are 1″ Pulleys fitted with Motor Tyres. They should be fixed on a 3½″ Rod mounted in the Strips 2.

The support for the front wheel should be made by bolting a Fishplate 5 to each of the Strips 2. A Flat Trunnion 6 can then be attached to the Fishplates by Angle Brackets. The front wheel is a Bush Wheel, and it should be fixed by its set-screw on a ⅜″ Bolt passed through the hole at the pointed end of a Trunnion 7. The Bush Wheel should be spaced from the Trunnion by a Washer on the Bolt.

Now pass a ⅜″ Bolt through the centre hole in the flange of the Trunnion and fix it tightly in place by a nut. The next step is to pass this Bolt through the hole at the pointed end of Flat Trunnion 6, and screw a nut on it. Then place two Angle Brackets 8 on the Bolt and hold them tightly in place by screwing on it a further nut. The Angle Brackets must be clamped between the two nuts, leaving the Bolt free to turn in the hole in Flat Trunnion 6. The steering arm is made from a Crank Handle held in the Angle Brackets 8 by two Spring Clips.

Parts required to build the Invalid Carriage: 2 of No. 2; 2 of No. 5; 4 of No. 10; 4 of No. 12; 1 of No. 16; 1 of No. 19s; 2 of No. 22; 1 of No. 24; 2 of No. 35; 19 of No. 37a; 16 of No. 37b; 3 of No. 38; 2 of No. 48a; 2 of No. 90a; 2 of No. 111c; 2 of No. 126; 2 of No. 126a; 2 of No. 142c.

You should begin building the Three-wheel Sports Car shown in Figs. 2 and 3 by bolting together the 5½″×1½″ and 2½″×1½″ Flexible Plates that form the sides of its body. Strengthen these Plates along their lower edges by a strip 1 on each side, made from two 5½″ Strips overlapped five holes. Now you can

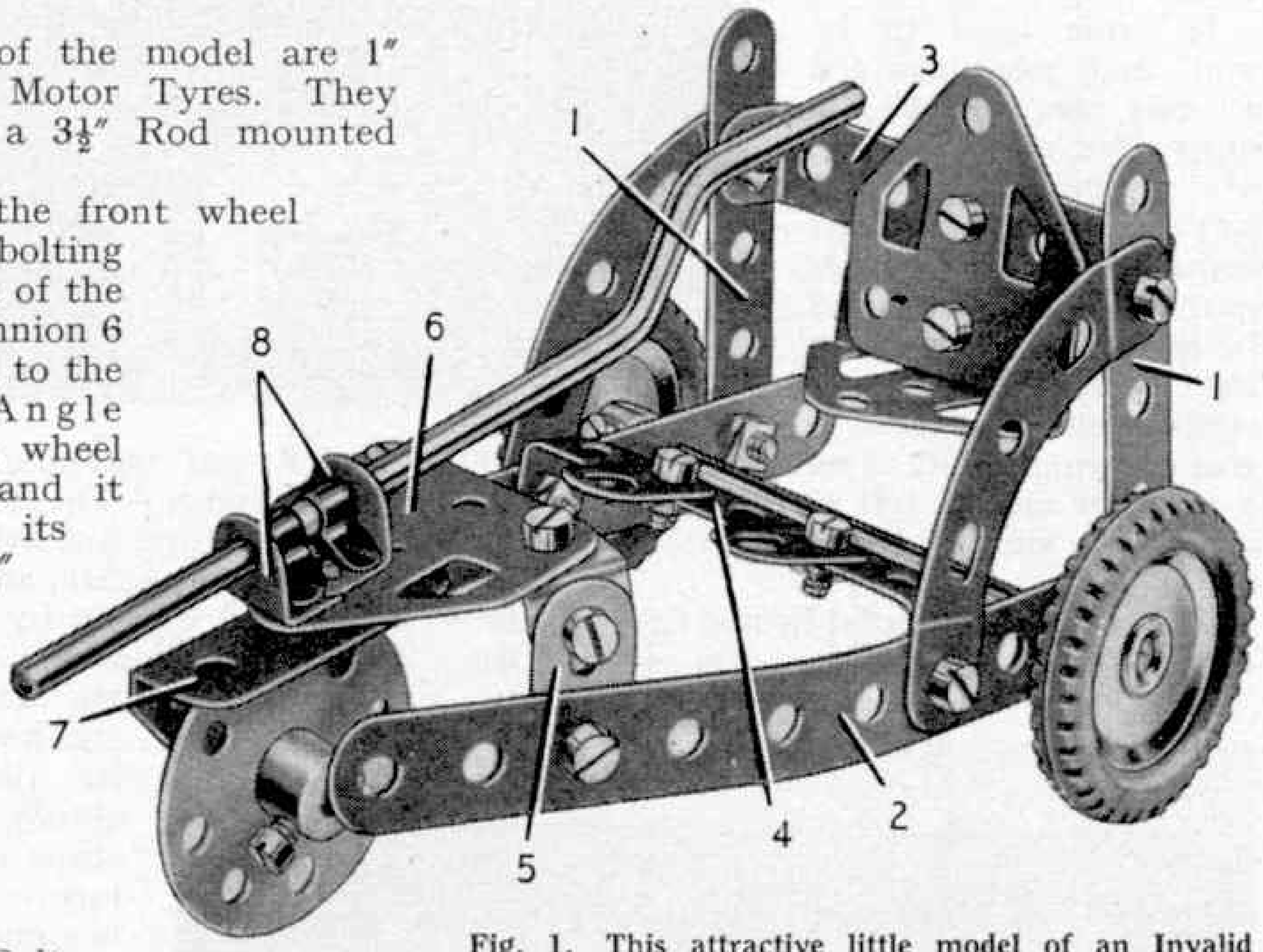


Fig. 1. This attractive little model of an Invalid Carriage can be made with parts in a No. 0 Outfit. It is fitted with a simple steering mechanism.

connect the sides of the body together, using two 2½″×½″ Double Angle Strips. One of the Double Angle Strips is held by the bolts indicated at 2, while the other is fixed by bolts in the next-to-end holes from the front ends of the strips 1.

To make the bonnet, curve a 4½″×2½″ Flexible Plate 3 as shown and bolt it between the sides. Make the front edge of the bonnet from two Formed Slotted Strips. You should bolt these to the Plate 3 at the top and their lower ends should be fastened by the same bolts used to attach the front Double Angle Strip.

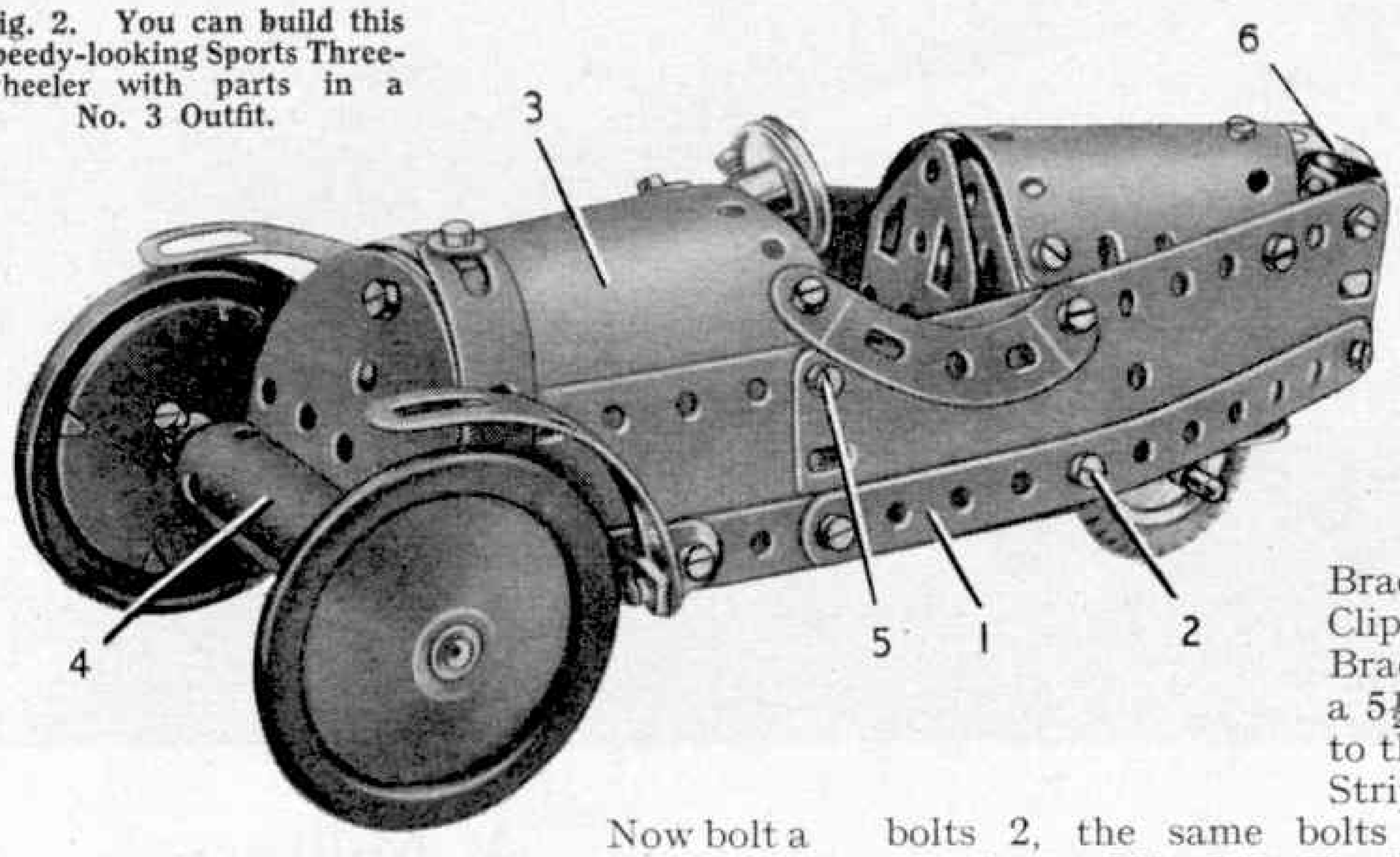


Fig. 2. You can build this speedy-looking Sports Three-wheeler with parts in a No. 3 Outfit.

Now bolt a U-section Curved Plate 4 to the last-mentioned Double Angle Strip and fix a Semi-Circular Plate to an Angle Bracket bolted to the Plate 3. An Angle Bracket should be fixed to each side of the body by a bolt 5, and a $2\frac{1}{2}''$ Strip fixed to these Angle Brackets between the sides. This Strip is used to support the steering wheel, which is a 1" Pulley fixed on a $\frac{3}{8}''$ Bolt held by a nut in a Fishplate. The Fishplate should be bolted to the $2\frac{1}{2}''$ Strip.

To make the tail of the car you will need a $1\frac{11}{16}''$ radius Curved Plate bent to the shape shown in Fig. 3. The rear corners of this Plate should be bolted to the sides of the body, while the front corners are attached to Fishplates bolted to the body. The tail should be completed by bolting two Double Brackets between the ends of the $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates, and by fixing a curved $2\frac{1}{2}''$ Strip 6 to the $1\frac{11}{16}''$ radius Curved Plate.

The model is now ready for the wheels to be fixed in place. The front wheels are held on a $3\frac{1}{2}''$ Rod mounted in the front holes of the strips 1. The rear wheel is a 1" Pulley fitted with a Motor Tyre, and it is free to turn on a $1\frac{1}{2}''$ Rod held in two Angle Brackets by Spring Clips. Each Angle Bracket is fixed to a $5\frac{1}{2}''$ Strip 7 bolted to the Double Angle Strip held by the bolts 2, the same bolts being used to attach a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate that forms the floor. One of the bolts, indicated at 8, supports also a $\frac{1}{2}''$ Reversed Angle Bracket placed inside the body.

You should make the back of the seat by overlapping two Flat Trunnions two holes, while the base of the seat can be made from two Trunnions overlapped in the same way. These parts should be bolted together and attached to the $\frac{1}{2}''$ Reversed Angle Bracket held by the bolt 8. Pass the bolt through a triangular hole in one of the Trunnions, and place a washer under its head.

Parts required to build the Three Wheel Sports Car: 6 of No. 2; 2 of No. 5; 3 of No. 10; 2 of No. 11; 7 of No. 12; 1 of No. 15b; 1 of No. 18a; 2 of No. 22; 2 of No. 35; 40 of No. 37a; 38 of No. 37b; 6 of No. 38; 2 of No. 48a; 2 of No. 90a; 2 of No. 111c; 1 of No. 125; 2 of No. 126; 2 of No. 126a; 1 of No. 142c; 2 of No. 187; 2 of No. 188; 2 of No. 189; 1 of No. 191; 1 of No 192; 1 of No. 199; 1 of No. 200; 1 of No. 214; 4 of No. 215.

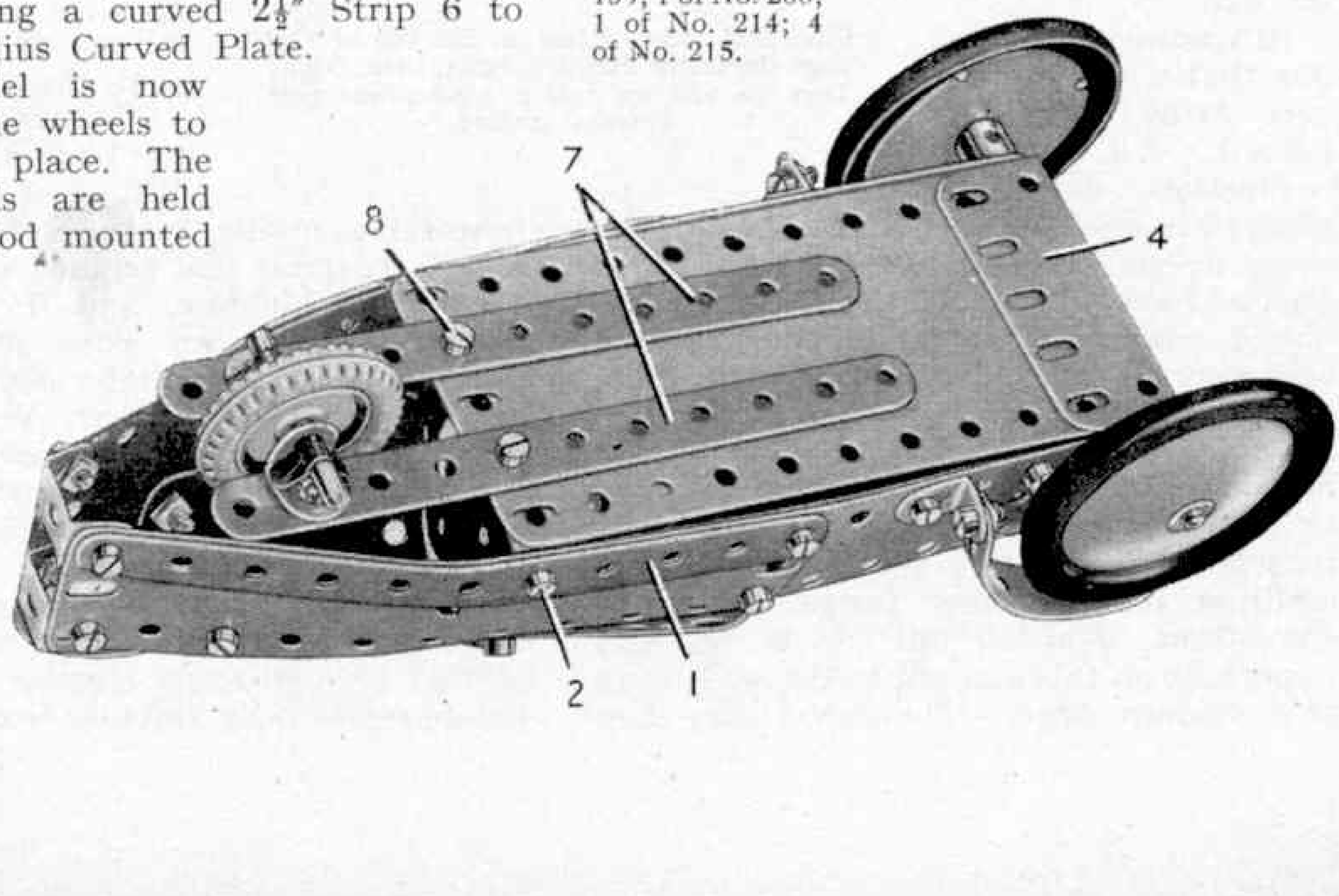


Fig. 3. An underneath view of the Sports Three-wheeler, showing the arrangement of the bearings for the rear wheel.

DINKY NEWS

By **THE TOYMAN**

A Military Ambulance and a New Air Liner

SOMETIMES, when there has been no new Army model for two or three months, so many collectors have written to express their concern that I have been quite worried about the strain thrown on the postman! Some enthusiasts seem to think that if there is a blank period as far as Army models are concerned, we have reached the end of the series and there will be no further additions. This is far from being the case, as you will see from the pictures on this page and on the back cover of this issue of the new Dinky Toys Military Ambulance No. 626.

In passing, I can tell you that we have more new Army models in hand, to which enthusiasts can look forward in due course, but the Dinky Toys series covers a very wide range nowadays and we have to try our best to satisfy the varied wishes of the many thousands of collectors who are always asking for more and more Dinky Toys.

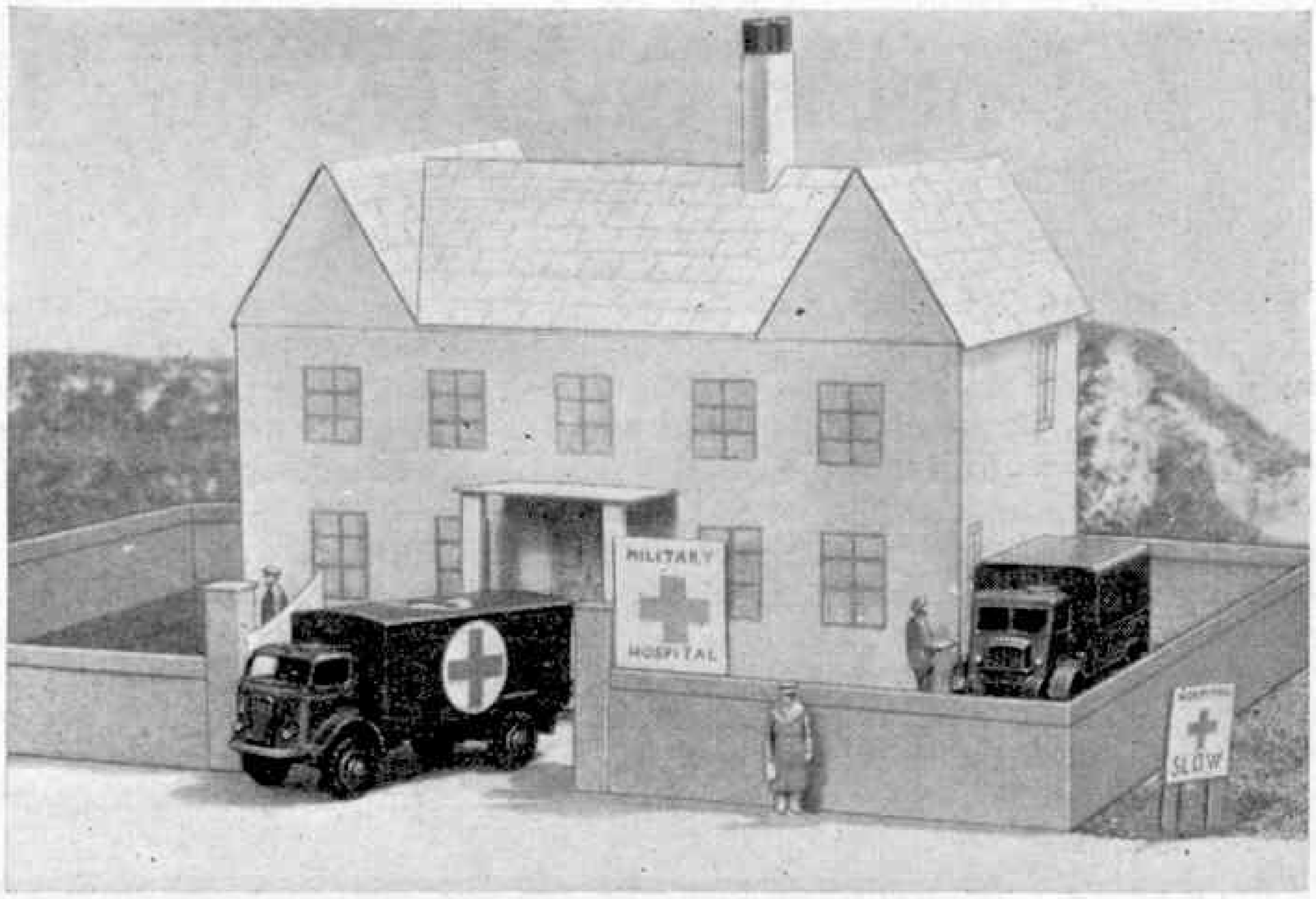
So far the models in the Army series have been based on actual combat vehicles, or on those connected with supplies and transport for fighting forces. The latest addition to the Army range is a non-combatant vehicle; but it is no less important on this account to the well-being of a modern Army. The new Dinky Toy is indeed a strikingly faithful reproduction of an up-to-date Army ambulance, and I know it will be greeted with joy everywhere.

The vehicle is correctly based on a Ford chassis, and is provided with a body typical of the style adopted by the Army. As usual, all the main features of the real ambulance are to be seen in it, including the hatch in the cab roof and ventilation louvres in the body. Perhaps the most striking features are the brilliant red crosses against white backgrounds, on the top and sides of the body, and the doors at the rear. And these doors really open, so you can make full use of the model in your play schemes.

First aid! The picture at the top of this page shows the Military Ambulance, Dinky Toys No. 626, on duty at a miniature field dressing station.

This new Dinky Toy can be used both in the field and at a base hospital, as my two pictures of it show. For a base hospital you require a fairly large permanent building, and if you have a layout specially for your Army models you may find a hospital a convenient way of filling in an odd corner. Very often the Army takes over a large house for use as a hospital, so if you base your model on a typical country house you won't be far wrong.

In the field more simple arrangements must make do, and usually casualties are carried to a dressing station for first aid before removal by ambulance to a hospital.



Another view of the Military Ambulance in service. In this picture it is seen passing through the gates of a military hospital.

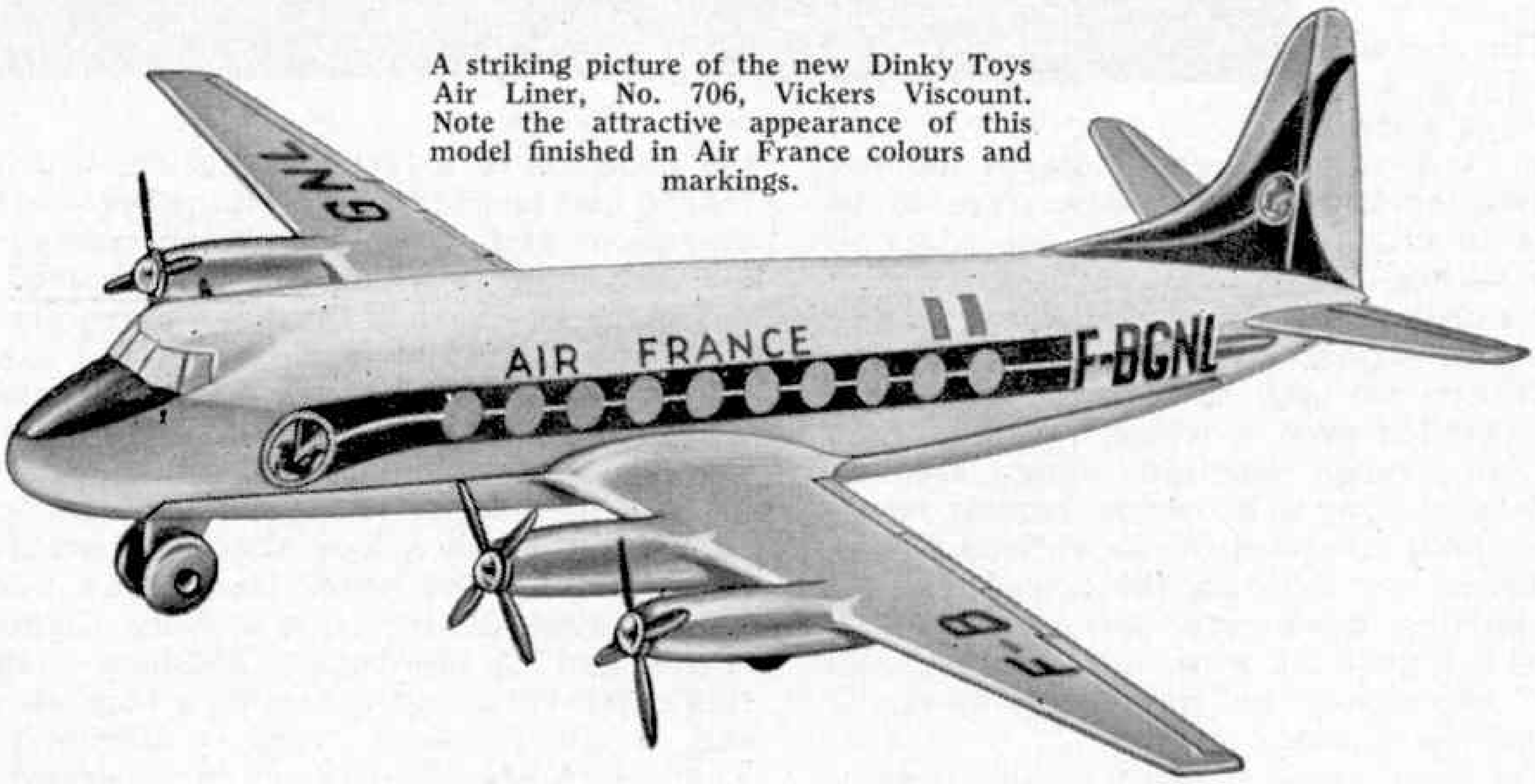
A simple tent will do for the dressing station, and as you can see from my picture it can be made into a most realistic scene. My tent is simply a piece of paper supported by two poles inserted in a base consisting of a flat piece of cardboard. String or thin wire is used for the tent ropes, and a small notice and one or two simple pieces of furniture complete the scene. Don't overlook the notice!

Although military ambulances are operated by the Royal Army Medical Corps, they are actually Royal Army Service Corps vehicles, and therefore the Dinky Toys model carries R.A.S.C. signs at the front and rear. It is finished in the usual service green, and altogether it represents a fascinating and important addition to the Dinky Toys Army series.

The second new model this month is one for the aircraft enthusiast, and I think that means every Dinky Toys owner! Recent additions of this kind have been based on R.A.F. machines, but here is a new civilian air liner—the Vickers Viscount, No. 706, the world's first successful propeller-turbine, passenger carrying aircraft. Over 120 of these machines are already in service with British European Airways, Trans-Canada Air Lines, Air France and major airlines in all parts of the world, and another 200 or so are on order.

An innovation as far as Dinky Toys air liners are concerned is that the Viscount is finished in the striking and attractive colour scheme of Air France. This will help to give your miniature aerodromes a really cosmopolitan appearance. It will be realistic too, for in real life aircraft from many countries can be seen at all important civilian airfields, and now with the Air France Viscount you can follow actual practice.

A striking picture of the new Dinky Toys Air Liner, No. 706, Vickers Viscount. Note the attractive appearance of this model finished in Air France colours and markings.

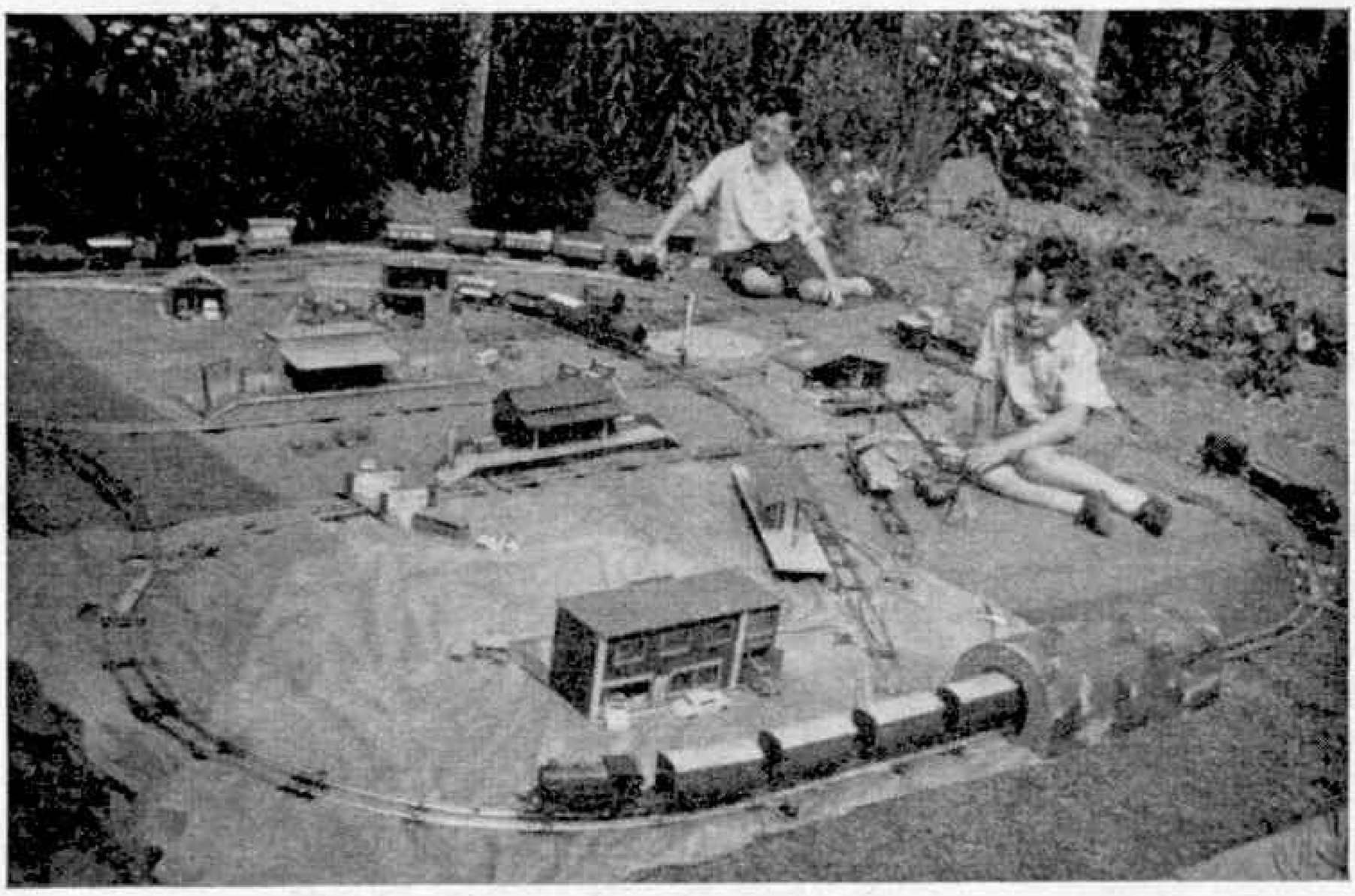


A Double Oval Hornby Layout

By "Tommy Dodd"

THIS month I am glad to show you a diagram of a Hornby layout as well as pictures of the railway itself. These show in a striking manner the way in which Hornby Rails can be adapted to suit layout requirements, and I am sure that they will give you many ideas for development and extension of your own railways.

The layout is owned jointly by Christopher and Rodney Sutton of Staines, who, with the enthusiastic assistance of their father, Mr. D. J. Sutton, have developed what I may call a set of layouts of different types that can be built up from the Hornby railway equipment that they have.



Rodney and Christopher Sutton busy with the Hornby layout described in this article.

This sort of thing is always good fun, and in the earlier stages of our railwaying it is a great advantage to be able to change our layouts according to our wishes. Sometimes when we turn to our railways, the time available does not allow an extensive system to be put down. At others we may have more time before us, perhaps even a whole day, and then we can arrange something more elaborate. It is interesting to know that careful details have been compiled of the various Sutton railways, so that no time need be lost in putting down any particular system. This is a little bit of method that increases the enjoyment of train running to a wonderful extent.

On the occasions shown in the illustrations the railway was arranged out of doors, a canvas sheet being laid down first in order to provide a convenient base for the track, and for the operators. But the same plan is followed in putting down the layout when indoor working is to be practised.

In planning the various layouts the fact that *both* operators like to run their trains at the same time had to be considered. Continuous running and the provision of alternative routes have therefore been important requirements. For this reason the inclusion of a terminal station, which would have involved backing-out operations and possibly a certain amount of "wrong-line" working, has been avoided.

The layout shown in the diagram requires a space about 11 ft. square. As you can see, it consists of two main oval tracks on which continuous running is possible—one for each operator!—and the two are joined together for through working. In addition, there is a loop that runs across the middle of the whole layout and this has involved the inclusion of both Right-Angle and Acute-Angle Crossings. Off this loop there are spurs serving a Turntable and a small goods yard respectively. There is plenty of space for the operators

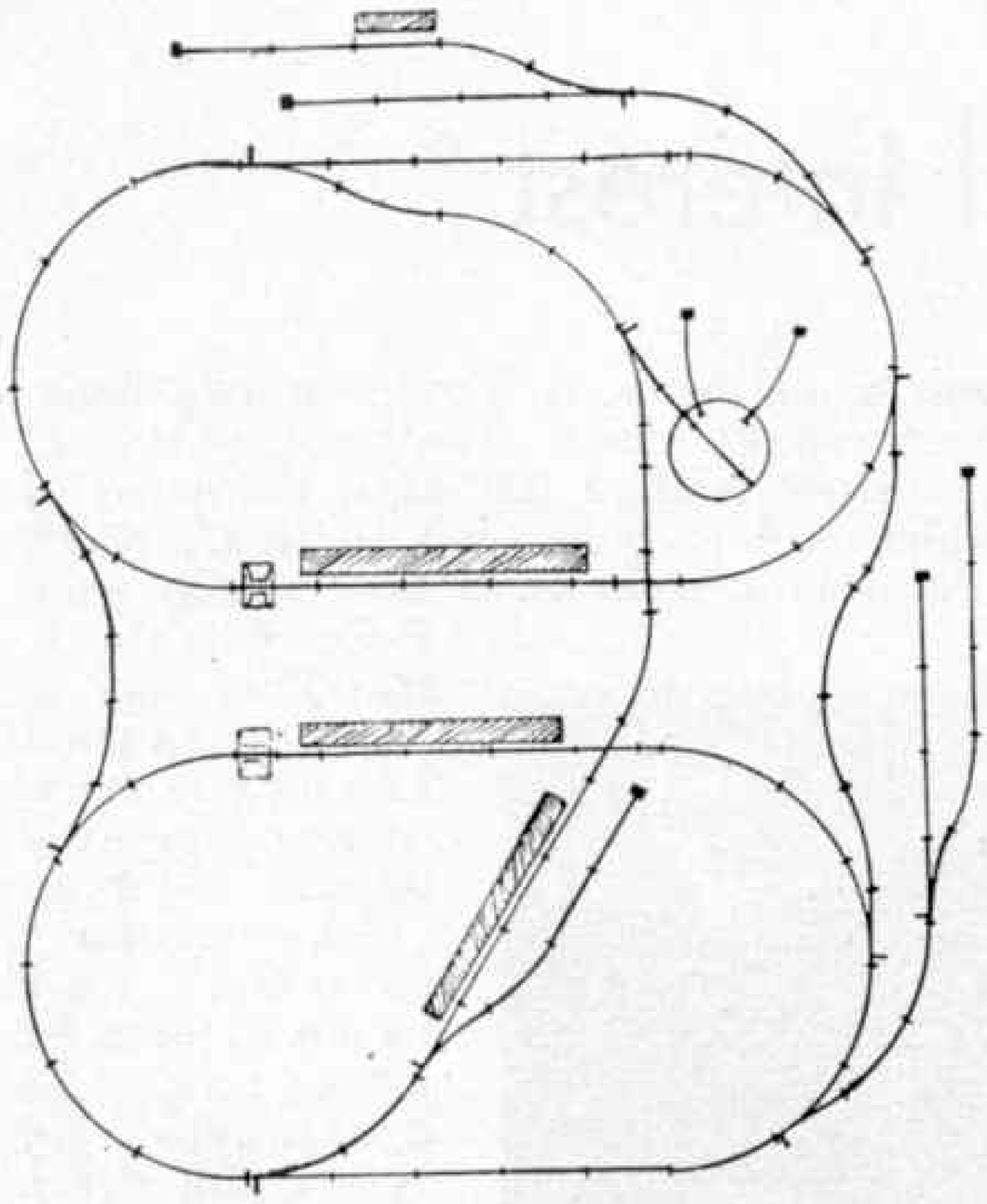


Diagram of one of the layouts possible with the Hornby equipment of Rodney and Christopher.

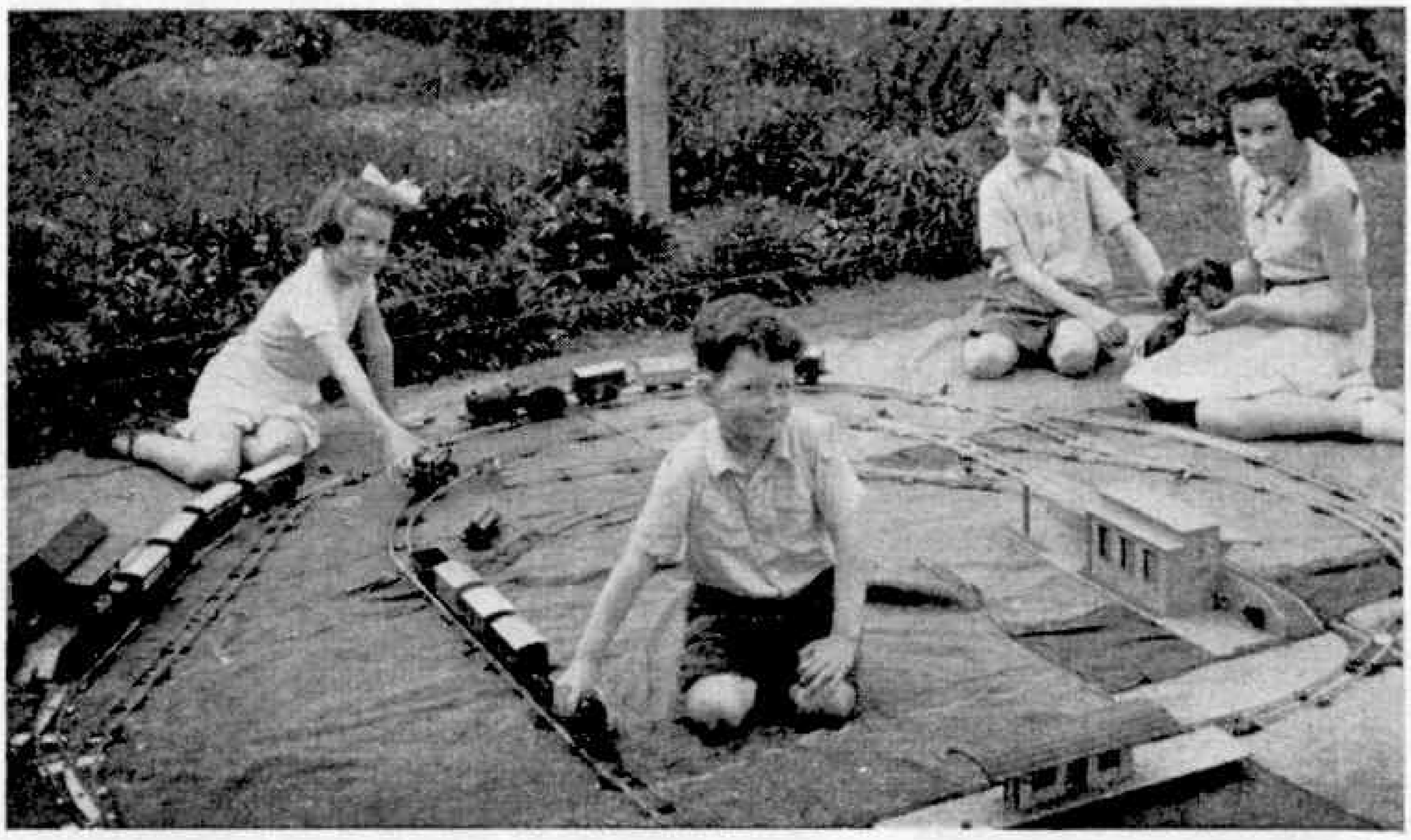
inside the railway, as the pictures show.

The system as a whole may look fairly complicated, but in reality it is quite simple. The various sidings and loops are arranged in a manner that make good running easily possible. The central position of the Turntable is an advantage, particularly as it is conveniently sited just off a continuous circuit. This means that engine turning and running round is easily performed, a point of considerable importance in operating.

The Sutton boys do not keep their railway entirely to themselves. The girls next door come in to share in the fun. I hear that both of them have proved to be enthusiastic and capable train operators, which I can well believe. An interesting sequel to their interest is the fact that their father is wondering whether this gives him sufficient excuse to buy a Train Set—which of course he will help to run!

Although outdoor running is favoured when conditions are suitable, the Sutton railway is often put down in the house and sometimes it joins forces with the systems of other owners. On one special occasion such a joint line connected up several rooms and the train working enjoyed as a result must have been quite interesting. In such circumstances some means of communication between the separate operators is desirable, perhaps a small bell or something similar. The practice of shouting messages, even if effective, would not add to the popularity of the railway.

In all, five locomotives provide motive power on the Sutton system and there is a splendid variety of passenger and goods rolling stock. On the extensive layouts possible, such as that shown in the diagram above, the engines have plenty of space to develop satisfactory speed and power and their good long runs are really thrilling. All the curves and Points used are of the 2 ft. radius kind, so that any of the Hornby Locomotives and rolling stock can be run. This is important where joint or combined working is practised and the equipment of several different owners is likely to be in use. Keep an eye too on lineside effects.



The girls next door lend a hand. Elaine and Sandra Corney are enthusiastic train runners.

Of General Interest

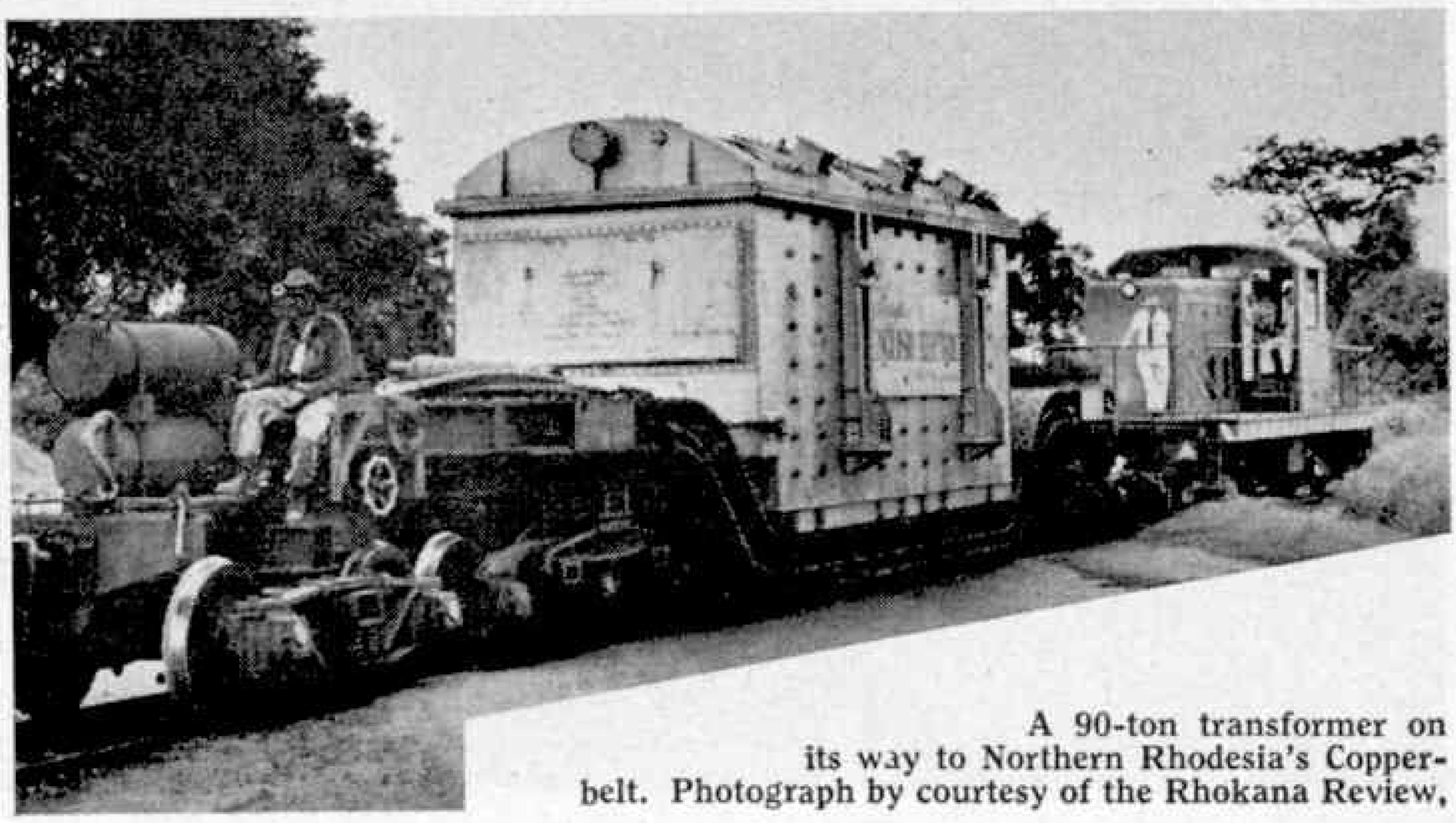
AS the pictures will already have shown you, the interest this month is in trains. But they illustrate rail transport of entirely different kinds in places many thousands of miles apart.

The first southbound trip of the diesel service between Edinburgh (Waverley) and Galashiels. Photograph by Norman C. Steven, Edinburgh.

The upper picture shows a modern two-car diesel train. Such trains are becoming well-known nowadays, and at first glance you may think that there is now little new or striking about such an illustration. But this particular train had the distinction of being the first of its kind to run in Scotland. The diesel car service on which it was engaged was that between Edinburgh and Galashiels, via Peebles. The train was photographed on its first southbound run from Waverley Station, Edinburgh, on Monday, 11th June last.

The lower picture is an example of an unusual load for a railway, details of which were sent to me by J. H. Davidson, of Nkana, Northern Rhodesia. The track is that of the South African Railways, the gauge of which is 3 ft. 6 in., and the load, which has been carried on a well wagon from Port Elizabeth, travelling only in daylight, is a giant transformer, weighing between 90 and 100 tons.

The picture shows the transformer nearing its destination in Northern Rhodesia. It is one of a pair built by the English Electric Company Ltd., for use on the high voltage transmission line between Jadotville, in the Belgian Congo, and the Rhodesia Congo Border Power Corporation's central switching station at Kitwe in Northern Rhodesia. To complete its journey the transformer was slid off the well wagon on to a solid platform of 9 in. timbers and from there on to a specially built road trailer that was taken by road a distance of three miles by two Leyland diesel tractors.



A 90-ton transformer on its way to Northern Rhodesia's Copperbelt. Photograph by courtesy of the Rhokana Review,

A New London Taxi

By J. Wyndham

LONDONERS have accepted the taxi in its present form for many years. For so long a time has its basic design remained practically the same, that the vehicle has become a part of the familiar London scene to Londoners and visitors alike.

When there is a tradition, it is very hard to break away and to do so can arouse a lot of criticism, but Mr. John Birch, of Birch Bros. Limited, bus, coach and taxi-cab operators, has attempted something that is quite new and unorthodox in the line of taxi-cabs, yet conforming to the constructional regulations laid down by the Commissioner of Metropolitan Police.

A licence was granted to the vehicle towards the end of December last year. It is the intention of Birch Bros. to put the vehicle in service with its own fleet and so obtain the reactions of the public and drivers alike, after which decisions will be made as to production of the cab.

The Birch taxi, photographed in Leicester Square by the author.

The new taxi has the general appearance of a shooting brake or station wagon, but on closer examination many other new features will be found in comparison with the older type of cab. For instance, on present taxi-cabs the passenger seat is over the rear axle, a most uncomfortable riding position, and luggage is carried almost in the open, where it cannot be properly safeguarded. The new design eliminates all these disadvantages. The main passenger seat is placed more nearly amidships, and access is with the usual doors on either side.

The rear seat will carry three abreast with comfort, and an additional passenger can be carried in a separate seat, facing rearward, in what was formerly the luggage space alongside the driver. The space behind the rear seat provides very generous luggage accommodation, access to which is through a separate door on the near side of the taxi. Although the tyres fitted are of the tubeless type, a spare wheel is carried in the luggage compartment.

The driver's compartment includes space for a taximeter, and is partitioned off from the rest of the body. To the left of the driver is a sliding full drop window that only he can operate. A communication panel is fitted just behind the driver, and the two piece windscreen can be opened.

Flashing indicators are fitted. There is a cab heater, a red light to warn the driver when any of the rear doors are open, or not securely fastened, and locks on all doors, while the exterior of the vehicle is finished in royal blue and cream.

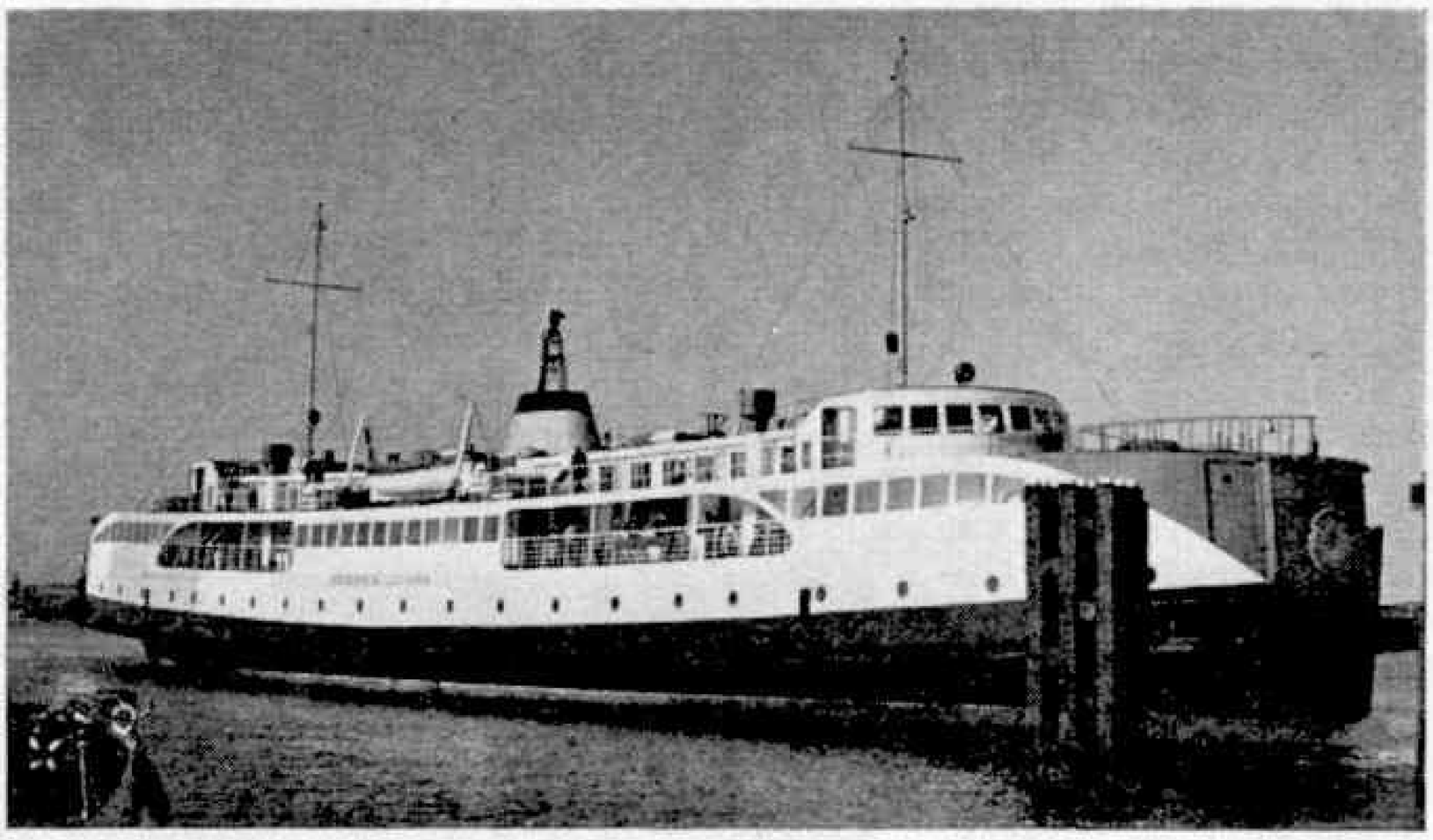
The new taxi is based on a chassis produced by the Standard Motor Co. Ltd., and the bodywork was built to the requirements of Birch Bros. Ltd., by Park Royal Vehicles Limited. It weighs 29½ cwt. and is 14 ft. 4 in. long. The engine is a Standard 4-cylinder diesel, and the estimated top speed is 60 m.p.h.

The taxi entered service on 18th April and during this, its first service job in London, I could not help thinking of the advance that has been made with this type of travel since London's first taxi appeared.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

The Flushing—Breskens Ferry



"Queen Juliana" is a car ferry on the service between Breskens and Flushing. Photograph by A. T. Gill, Stanmore.

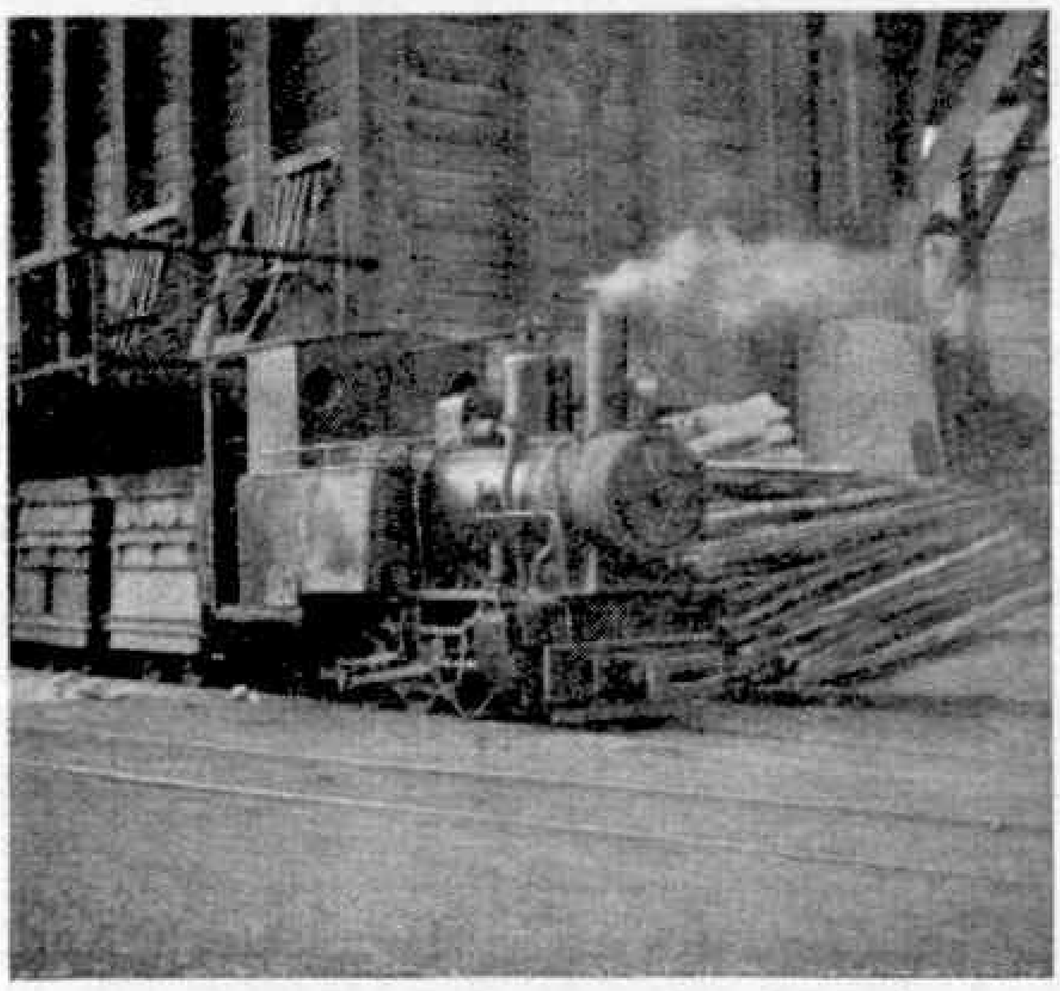
While staying on holiday at Bruges I visited the island of Walcheren, crossing the river Scheldt by car ferry from Breskens to Flushing.

Since the war new vessels have been built for this four mile crossing, and these are styled on modern lines. They have ends that are exactly alike and run from one terminal to another without manœuvring or turning in the busy river. They are powered by heavy diesel motors and operate with the aid of radar in foggy weather.

At each end are large double power driven doors, that open when the shore is reached. A long landing ramp on the shore is then lowered to the car deck, and the cars drive off in the same direction as they drove on. Nearly one hundred cars are taken at each loading and because of the rapid turn-round, there are eighteen sailings in each direction daily. The toll for cars is 60 cents, which is a little over a shilling. Motor cycles and their riders travel free. Two ships maintain the schedule, the *Queen Juliana*, shown in the picture just leaving Breskens harbour, and the *Prince Bernhard*.

As one nears Flushing it is possible to pick out the beaches where in November 1944, British Commandos landed to capture Walcheren and thus free access to the port of Antwerp.

ARTHUR T. GILL (Stanmore, Middx.).



An interesting narrow gauge side tank locomotive that hauls trains of gold ore from the Great Boulder Mines at Kalgoorlie, in Western Australia. Photograph by E. W. Woodland, Perth, Western Australia.

A Narrow Gauge Engine

While on a holiday in Kalgoorlie, and visiting the various gold mines on the Golden Mile, I was interested to encounter the small steam locomotive seen in the accompanying picture. The track on which it runs is 2 feet in gauge.

This engine is used by the Great Boulder Mines to haul wagons of gold ore to the "crackers" at the treatment plant about three-quarters of a mile away. My son aged six years was delighted at the baby engine, and was very thrilled when the driver-fireman asked if we would like to ride in the cab with him. Fuel for the engine is wood.

E. W. WOODLAND (Perth, W. Australia).

Meccano "Realism" Competition

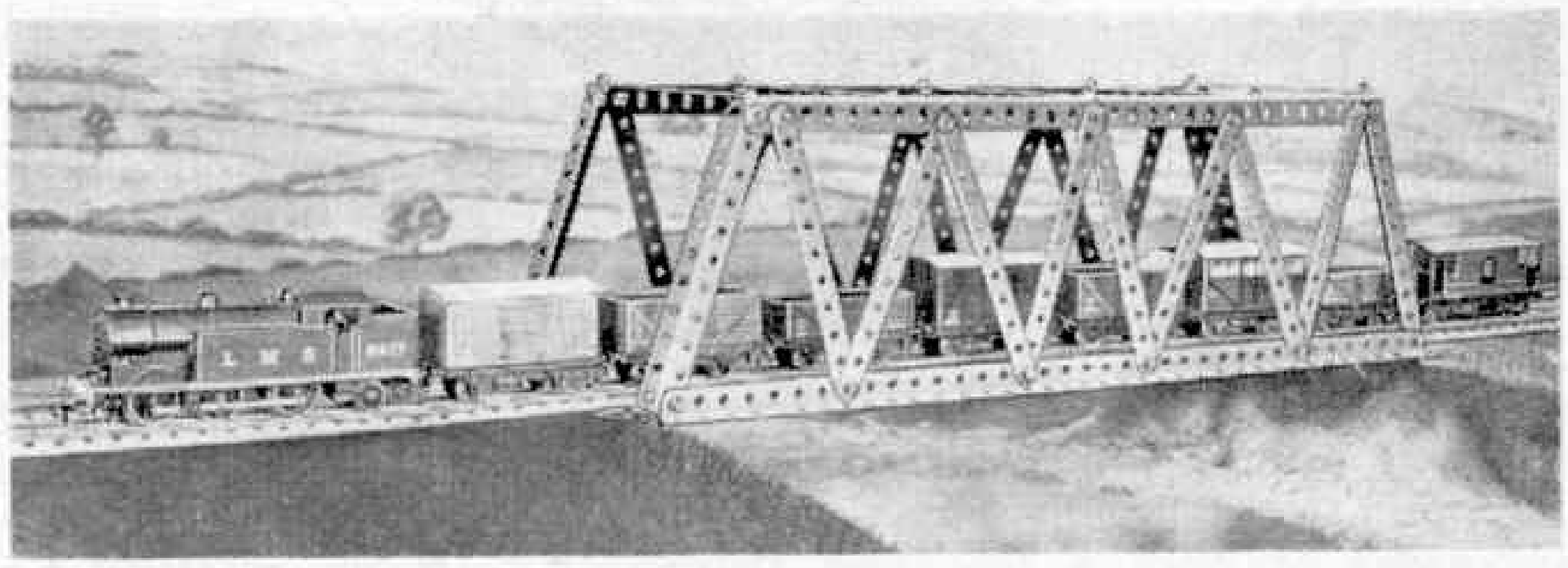
Closing Date 30th September

THE novel contest we have arranged for the summer closes for entries at the end of this month, but there is still time for Home readers to prepare and send in entries if they have not already done so. Full details of the competition have been given in previous issues of the *M.M.*, but for the benefit of readers who missed the earlier announcements we are repeating the main points.

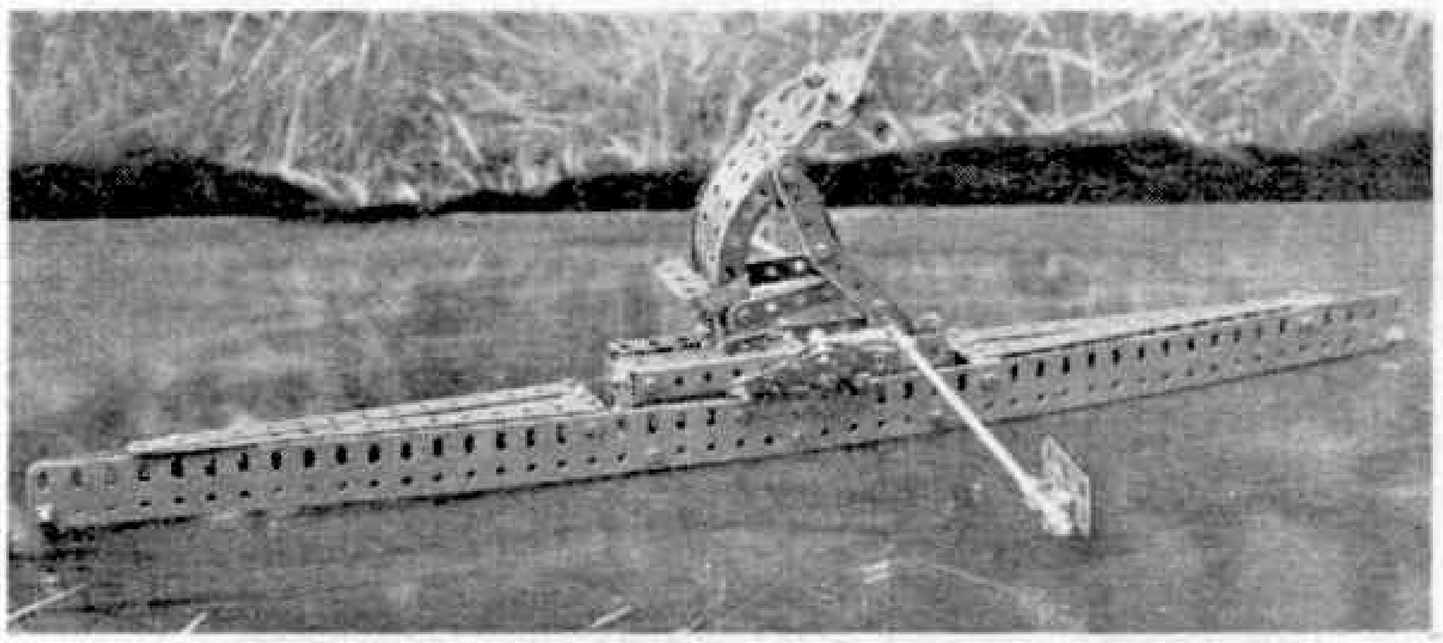
This contest is devised specially so that competitors can carry out most of the preparations for their entries out of doors. The competition is for Meccano models placed in realistic surroundings, which can be of any kind and size you like. The only condition is that a Meccano model or models must be an essential part of each scene. Two examples of the kind of scenes suitable for a competition of this kind are reproduced on this page, and others will readily suggest themselves. It is not necessary to build a new model for the contest. If you have a model already built, or one under construction, so much the better; the main thing is to set your model in a scene as natural and as realistic as possible.

When you have prepared your scene take a photograph or prepare a neat sketch of it, and send your entry to *Meccano Realism Competition, Meccano Ltd., Binns Road, Liverpool 13.* Don't forget to add your name, address and age to your entry, and post it to reach us not later than 30th September.

There are two Sections in this Competition. If you are under 12 years of age on 30th September, 1956, your entry will be placed in Section A; if you will be 12 or over on that date it will be entered in Section B. Full details of the prizes to be awarded in each Section are given in the panel at the foot of this page.



Entries of this kind are suitable for the Competition announced on this page. The realistic river scene, arranged by H. Bosworth, Melton Mowbray, won a prize in a previous similar contest.



MARCH GENERAL CONTEST

Principal Prize-winners

Section A

First Prize, Cheque for £4/4/–: A. D. Peacock, Chichester. Second Prize, Draft for £2/2/–: F. Mahnen, Esch on the Alzette, Luxembourg. Third Prize, Cheque for £1/1/–: T. R. E. Latter, Dinas Cross.

Ten Prizes each of 10/–: I. Tomlinson, Sheffield 11; G. Giese, El Palomar, Argentina; G. B. Lewis, Swansea; J. S. Fowler, Slough; C. Gulliford, Taunton; W. & J. Slosse, Hoboken, Belgium; R. J. B. Ashby, Martock; K. Pickin, Palmerston North, N.Z.; R. Prince, Leicester; I. Stone, London W.7.

Section B.

First Prize, Cheque for £4/4/–: H. J. Halliday, London S.E.15. Second Prize, Cheque for £2/2/–: M. Sher, Johannesburg, S.A. Third Prize, Cheque for £1/1/–: M. Brammer, Sheffield.

THE PRIZES

The following prizes will be awarded in each of the Sections A and B.

	£	s.	d.
First Prize, Cheque for	4	4	0
Second Prize, Cheque for	2	2	0
Third Prize, Cheque for	1	1	0
Ten Prizes, each of		10	0
Ten Prizes, each of		5	0

A New Meccano Gears Outfit

Exciting Possibilities for Model-Building

ONE of the most important additions to the range of Meccano Outfits in recent years was the Meccano Gears Outfit "A." Its appearance gave owners of smaller Meccano Outfits, containing either

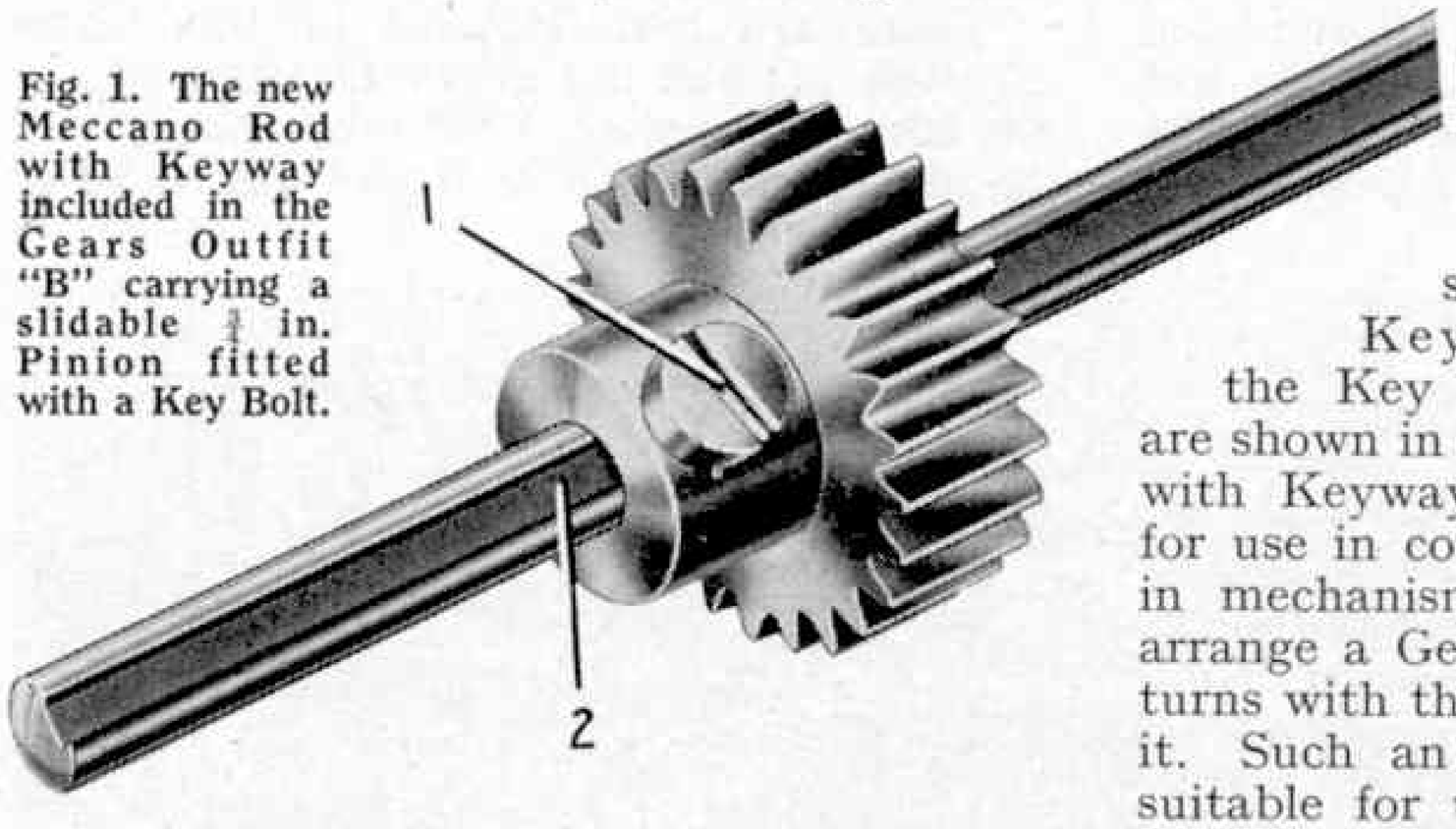


Fig. 1. The new Meccano Rod with Keyway included in the Gears Outfit "B" carrying a slidable ½ in. Pinion fitted with a Key Bolt.

no gears or only a few, the chance to build up more exciting drives for their models.

In the Meccano world we are always striving for improvement and now we have designed a new Gears Outfit, known as Gears Outfit "B," that will be even more valuable to model-builders. It contains a carefully selected assortment of standard Meccano gears and other parts designed to allow these to be used with the greatest effect. In addition, *it includes two entirely new Meccano parts*, known as the Rod with Keyway and the Key Bolt respectively, while a Compression Spring and four Collars also have been added. Every model-builder indeed should get the two new parts, for they will open up new fields for exciting experiments in the construction of mechanisms.

When a Clockwork or Electric Motor is used to drive a model, even a small and simple one, the best results are obtained when suitable speed reduction gearing is arranged in the drive. All the gears required to assemble such reduction gearing are provided in this Outfit, and in addition it is easy to assemble with their aid many other types of gear mechanisms, such as gear-boxes, differentials, twin-drive, steering and reversing gears. Examples of all of these are fully described and illustrated in the very attractive Book of Instructions included in the Outfit.

Now I want to refer specially to the new Rod with Keyway (Part No. 230) and the Key Bolt (Part No. 231), which are shown in Fig. 1 on this page. The Rod with Keyway is 4" long and is intended for use in conjunction with the Key Bolt in mechanisms where it is necessary to arrange a Gear or Pinion so that while it turns with the Rod it is free to slide along it. Such an arrangement is particularly suitable for use in gear-boxes. The Key Bolt is marked 1 in Fig. 1, and the Rod with Keyway is marked 2.

To use the Key Bolt it is screwed into one of the threaded holes in the Gear or Pinion, so that the spigot at the end of the Key Bolt enters the Keyway in the Rod with Keyway. The spigot does not grip the Rod, even when it is screwed down tight, but the fact that it projects into the Keyway or groove ensures that

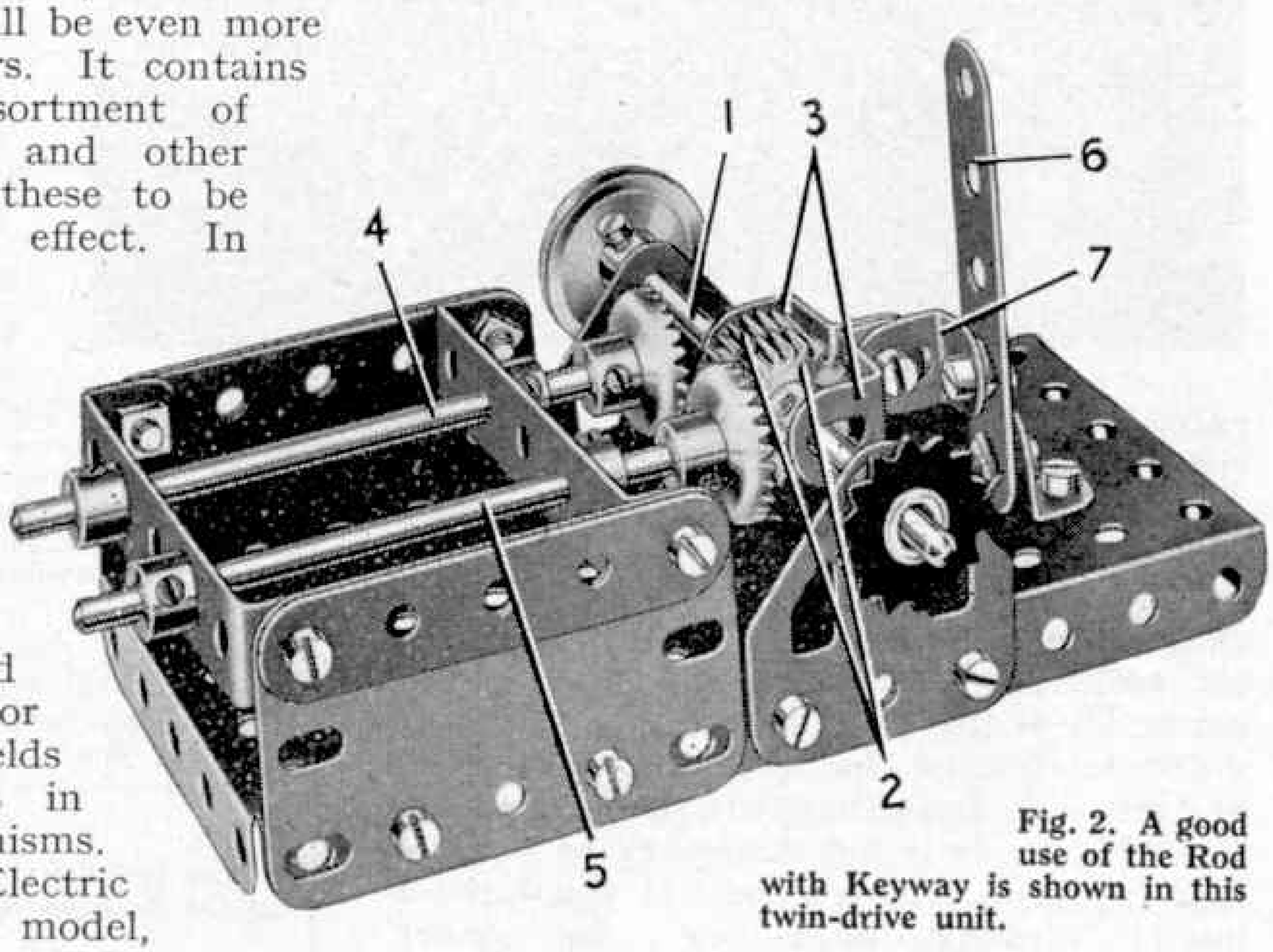


Fig. 2. A good use of the Rod with Keyway is shown in this twin-drive unit.

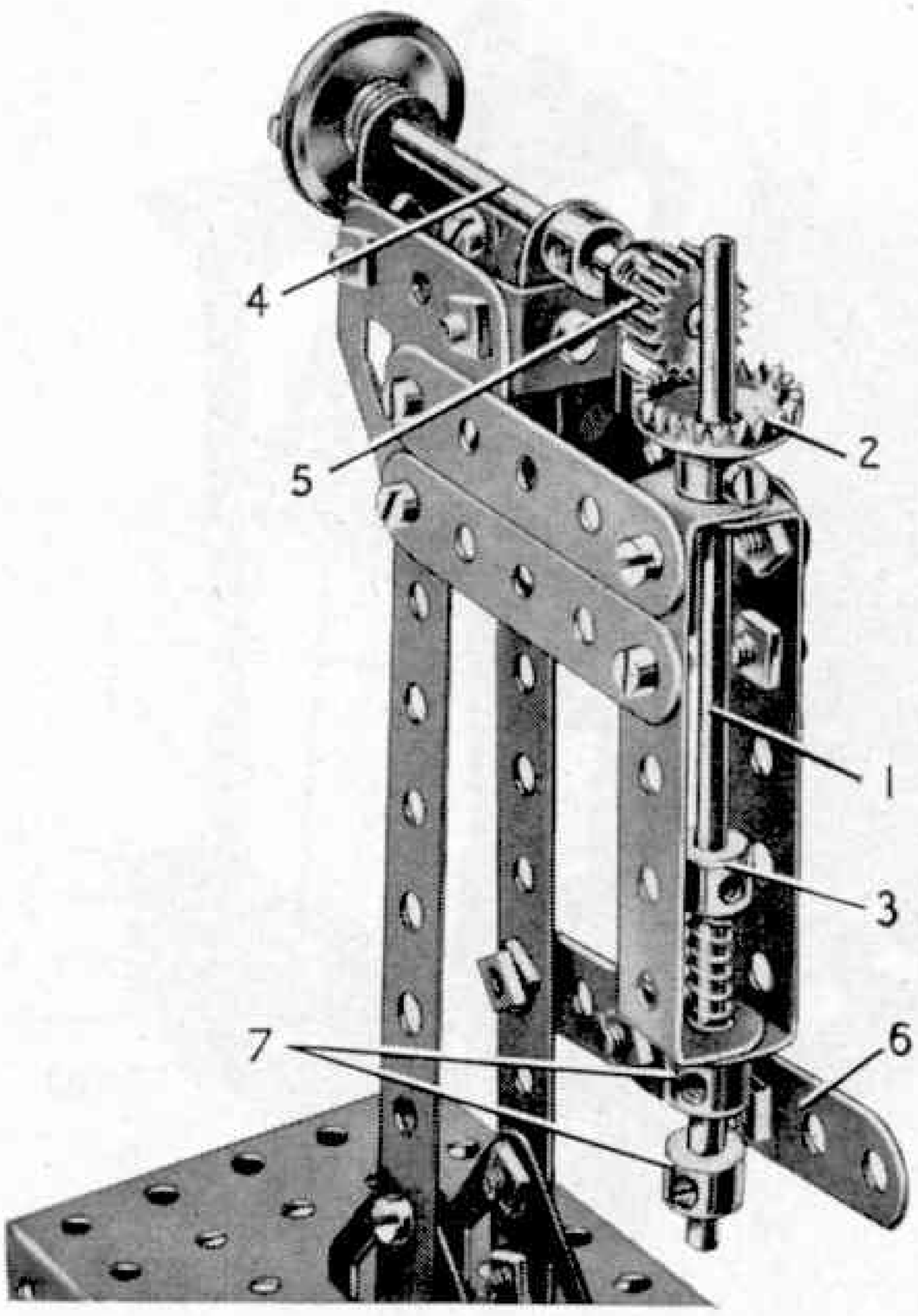


Fig. 3. An application of the Rod with Keyway to form the drill spindle of a model drilling machine. By its use the spindle is free to rise and fall without interruption to the drive.

the Gear or Pinion turns with the Rod. Several applications of the Rod with Keyway are shown in the Gears Outfit "B" Instructions Book and three examples are shown in Figs. 2, 3 and 4 on these pages.

Fig. 2, from the Instructions Book, illustrates how to build with the gears in the Outfit a Twin Drive Unit that will be found useful in many models such as cranes, in which it is necessary to drive two separate movements from a single Motor. With this mechanism a drive can be transmitted to two shafts, either independently or together; and one of these shafts can be used to operate the hoisting movement of a crane, while the other controls raising and lowering of the jib.

The second mechanism, also taken from the Instructions Book, shows how a drive can be transmitted to a Rod that must be free to slide in its bearings. This particular example is a drive to the shaft of a model drill, and shows how the Rod with Keyway and the Key Bolt enable the shaft to be raised or lowered without affecting the drive.

The gear-box for model vehicles shown in Fig. 4 has been designed as a further example of the way in which the new Rod with Keyway can be used with standard Meccano gears in the assembly of compact mechanisms of various kinds. This gear-box provides three forward speeds and a reverse drive, and it requires a few gears in addition to those contained in the Gears Outfit "B." It serves to illustrate how easily the new parts can be used not only with the parts in the Gears Outfit but with other parts in the Meccano System.

Referring to Fig. 4 the gear-box input shaft is a Rod 1 that carries a ½" Pinion in constant mesh with a 57-tooth Gear on a Rod with Keyway 2. The other gears on the Rod with Keyway are free to slide but they are made to turn with the Rod by Key Bolts screwed into their bosses. The sliding gears are grouped in pairs, and each pair is linked by connecting arms to a selector shaft. The sliding gears can be moved into mesh with corresponding gears on the output shaft 3. The movement of the selector shafts is controlled by the gear lever 4, which is universally mounted.

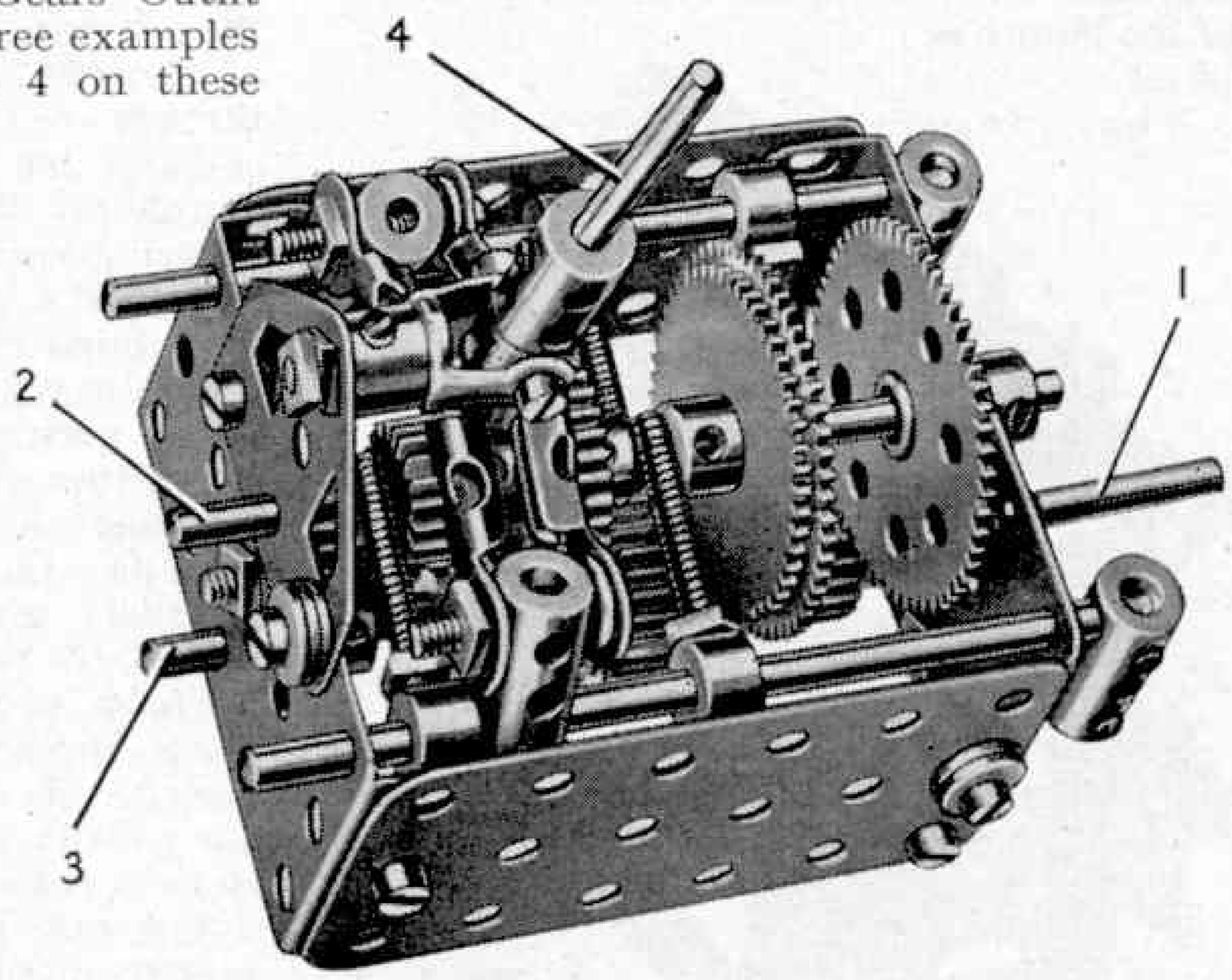


Fig. 4. One of the most useful applications of the Rod with Keyway is to be found in gear-boxes. It is used in this three-speed and reverse example, and helps in keeping it compact.

MODEL OF THE MONTH:

A Fascinating Textile Machine

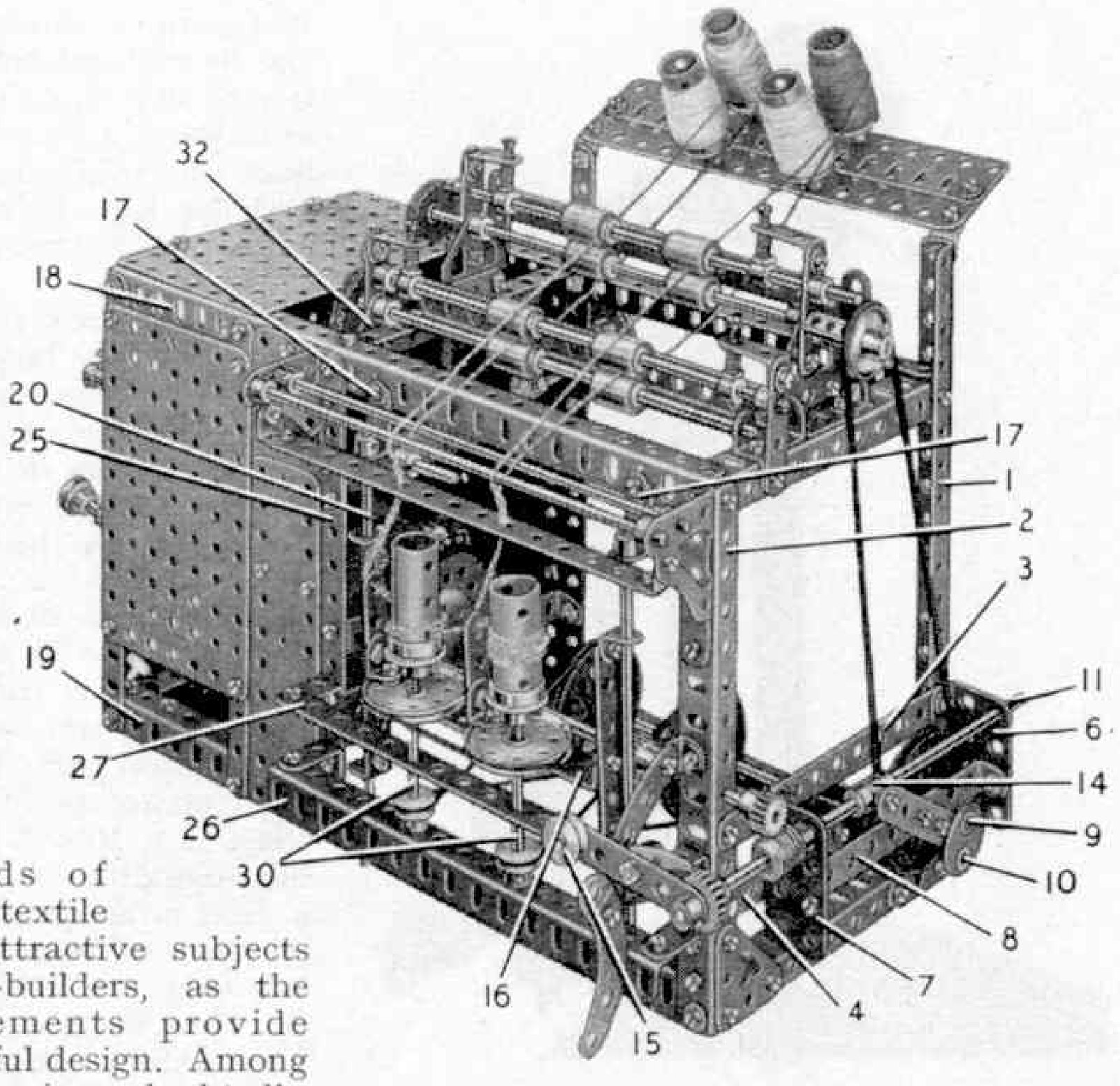


Fig. 1. A thread twisting and knopping machine for preparing special type threads for use in textile weaving. Ingenious mechanisms make it an attractive model to watch in motion.

THE various kinds of machines used in the textile industry make really attractive subjects for experienced model-builders, as the many intricate movements provide fascinating scope for skilful design. Among these machines the loom is undoubtedly the best known to Meccano model-builders, and the one that is reproduced most often. But there are many other equally interesting machines used to prepare the threads and yarn for weaving. One of these is the thread twisting and knopping machine on which the September Model of the Month is based.

The main purpose of this machine is to twist together two single-ply threads to form one thicker and stronger thread, but at the same time it can be used to produce a variety of threads of various kinds. If the two threads to be twisted are of different colours, one light and one dark, the final double-ply thread can be produced in an amazing variety of patterns. For example, one of the colours can be made to show predominately for a given length of thread, then automatically the machine will revert to an even twist of both colours.

Another important function of this machine is the production of "knop" threads, that is, threads in which at intervals small bunches of one coloured thread are twisted round the other thread, to form a small bead or knop. These knop threads can be made up into a variety of materials, and as the knops are usually in bright colours the resulting cloth is colourful and attractive.

The real machines may have as many as 200 spindles each, and they run at very high speeds. The Meccano model has two spindles, and it has been necessary to depart slightly from the design of the

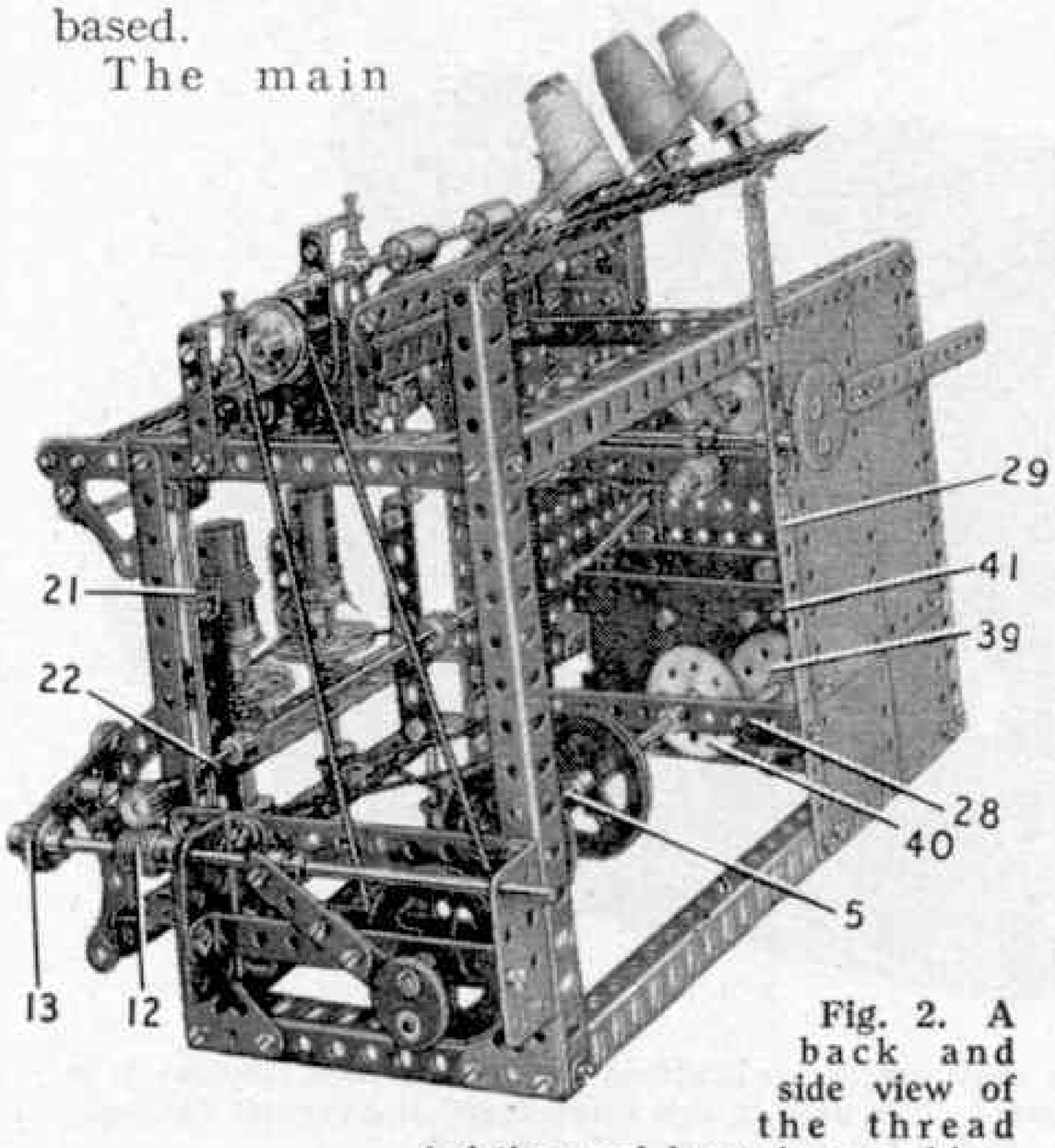


Fig. 2. A back and side view of the thread twisting and knopping machine.

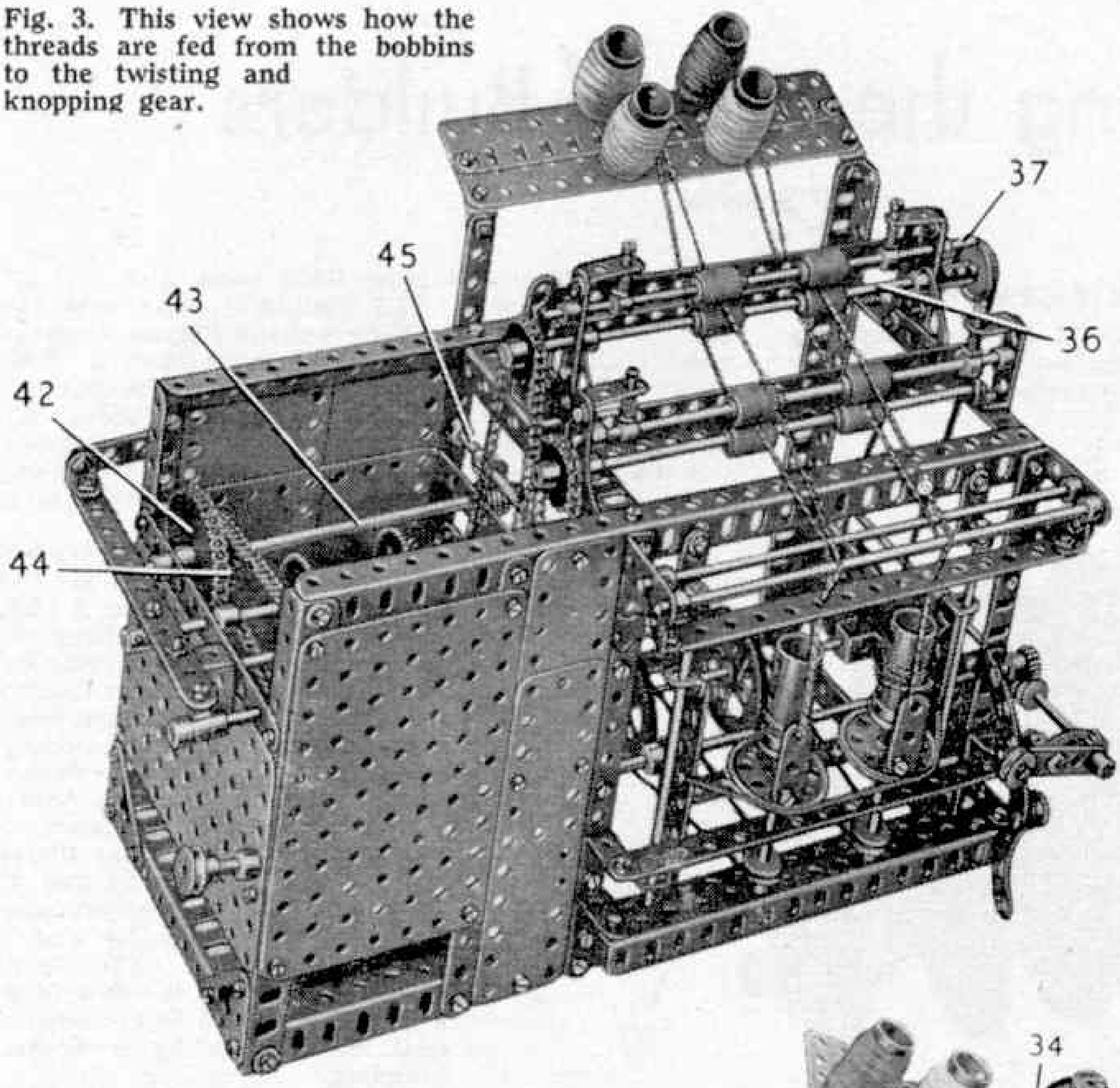


Fig. 3. This view shows how the threads are fed from the bobbins to the twisting and knopping gear.

actual machine in order to make the construction as simple as possible. Nevertheless it works in much the same way as the real machine and it is fascinating to watch in action.

The model is operated by an E20R(S) Electric Motor and is provided with an automatic gear-box that allows drives at various speeds and of intermittent duration to be selected. The variations in the designs of the finished threads are made by adjusting the ratios and the nature of the drive by means of this gear-box.

Full constructional details of this fine model, and a list of the parts required to build it, can be obtained by writing to the Editor, enclosing a 2d. stamp for postage. Application should be made as early as possible; otherwise you may find that all supplies have been distributed. The demand for the Model of the Month instructions has increased steadily, and although we do our best to ensure adequate supplies, we cannot promise that we will be able to meet requests received a long time after publication. We have made special arrangements to reserve copies for Overseas model-builders who receive their Magazines later than readers in this country.

We are still receiving requests for copies of the Instructions for models that appeared in previous issues, but unfortunately all supplies of these have now been distributed, with the exception of the Instructions for the Motor Chassis that appeared in last month's *M.M.* We expected an exceptionally large demand for details of this model and accordingly we prepared an extra quantity. A few copies are still available.

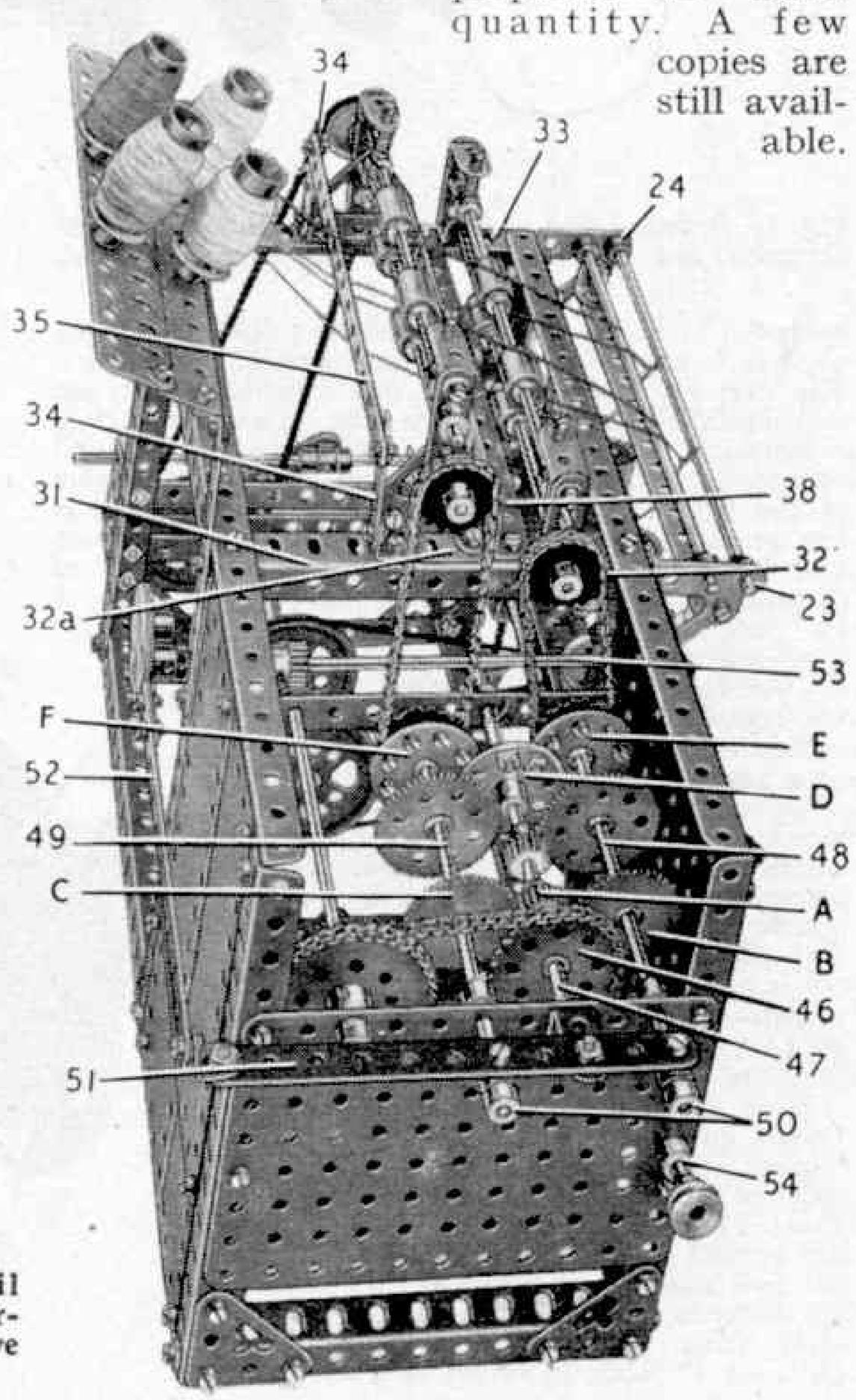


Fig. 4. Detail view of the gear-box and the drive to the rollers.

Among the Model-Builders

By "Spanner"

A COMPACT EPICYCLIC GEAR-BOX

In the February, 1956, issue I included pictures and brief details of an interesting four-speed and reverse pre-selector gear-box constructed recently by C. Horsford Liverpool. The gear-box was of the epicyclic type and was arranged in a special housing so that it could be used for demonstration purposes. The gear-box itself however was unsuitable for use in a model vehicle owing to its size. Since the original mechanism appeared I have had another visit from Horsford, who brought along an improved version of the gear-box with the important advantage that the overall size had been greatly reduced. Although still large compared with the more usual type of gear-box, the size has been reduced to proportions that permit the mechanism to be fitted to large models of vehicles such as tankers, where the arrangement of the body provides sufficient room. The improved epicyclic gear-box is shown in Figs. 1 and 2.

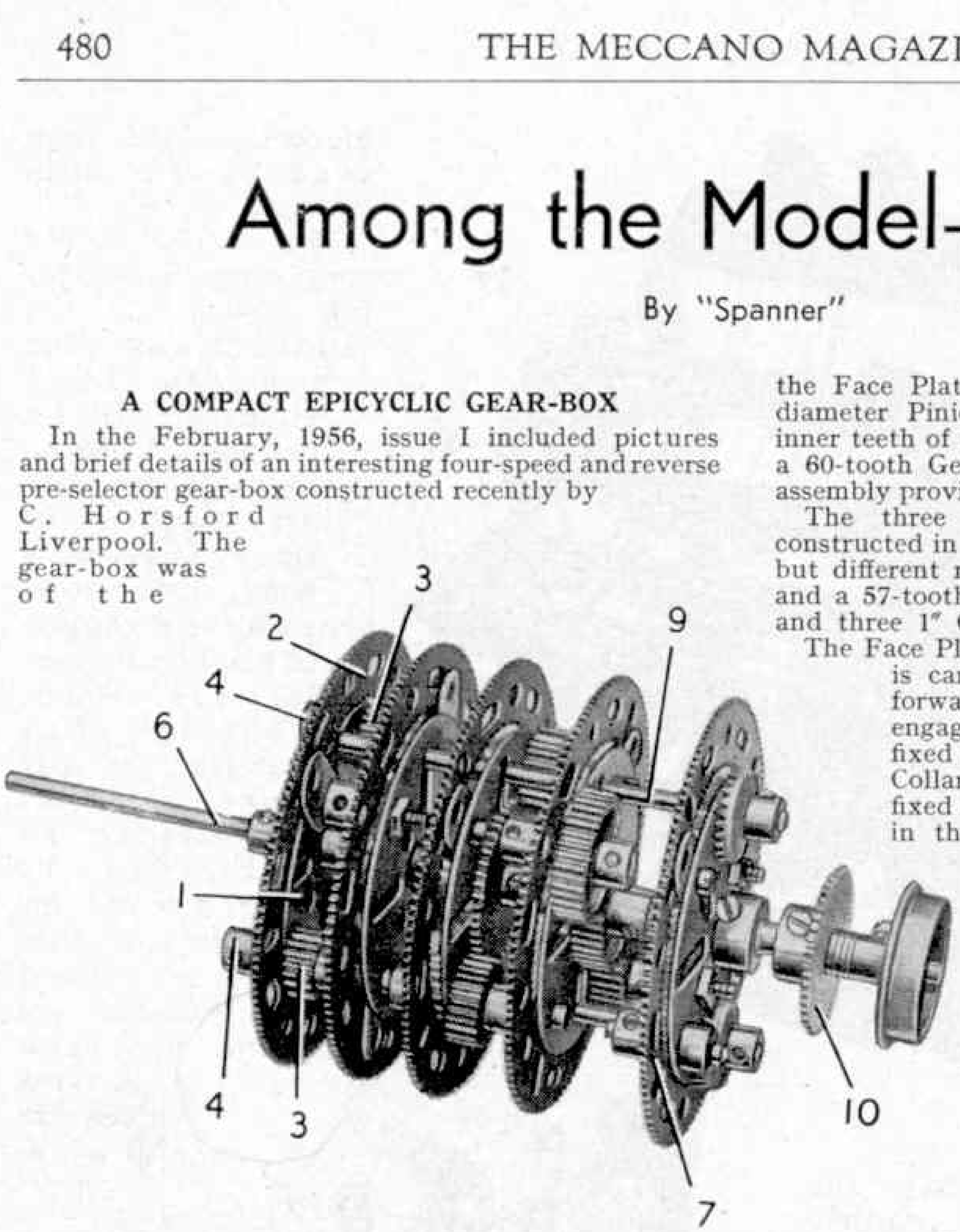


Fig. 1. A four-speed and reverse pre-selector gear-box designed and constructed by C. Horsford, Liverpool.

As in the case of the previous mechanism a separate epicyclic assembly is used for each ratio. The assemblies for each of the four forward speeds are similar in general design and differ only in the sizes of the Gears and Pinions used. It is necessary therefore to describe only one forward gear train and the reverse gear assembly in detail.

Each of the forward speed gear trains consists of a Face Plate 1 located inside a Gear Ring 2 by two pairs of Fishplates bolted to the Face Plate. The Fishplates in each pair are spaced apart by two Washers on the bolt and are arranged so that they are located one on each side of the Gear Ring. Two ½" Pinions 3 are fixed on 1" Rods mounted in holes in the Face Plate, and these Rods carry also two $\frac{7}{16}$" diameter Pinions 4. The Pinions 3 mesh with the inner teeth of the Gear Ring and the Pinions 4 engage a 60-tooth Gear 5 fixed on the input shaft 6. This assembly provides the top gear train of the mechanism.

The three remaining forward gear trains are constructed in the same way as the top gear assembly, but different ratios are obtained by using ½" Pinions and a 57-tooth Gear, ¾" Pinions and a 50-tooth Gear and three 1" Gears.

The Face Plate assembly of the reverse gear train 7 is carried out in the same way as for the forward gears, but two ½" Pinions 8 that engage the inner teeth of the Gear Ring are fixed on 1" Rods held in the Face Plate by Collars. The Pinions 8 engage similar Pinions fixed on Threaded Pins passed through holes in the Face Plate, and the latter Pinions mesh with another ½" Pinion fixed on the input shaft 6. When all the gear trains are mounted on shaft 6, the five Face Plates are coupled together by two 4" Rods 9 held in the reverse gear Face Plate by a Collar and a ¾" Contrate each. The drive from the gear-box is taken from a Gear 10 coupled to the reverse gear Face Plate by a Socket Coupling.

The gear required is engaged by preventing the appropriate Gear Ring from turning by means of a suitable selector mechanism.

A NOVEL TOY FOR YOUNG MODEL-BUILDERS

Fig. 3 illustrates a simple but effective model of a ticket issuing machine of the kind used by many public transport companies. This attractive little model is the result of a combined effort by Mr. J. H. Hammond, Slough, and his son. The main details of the machine will be clear from the picture, but the following notes may be helpful to model-builders who wish to make the machine for themselves or for younger brothers and sisters.

A roll of paper is carried on a 3½" Rod that is

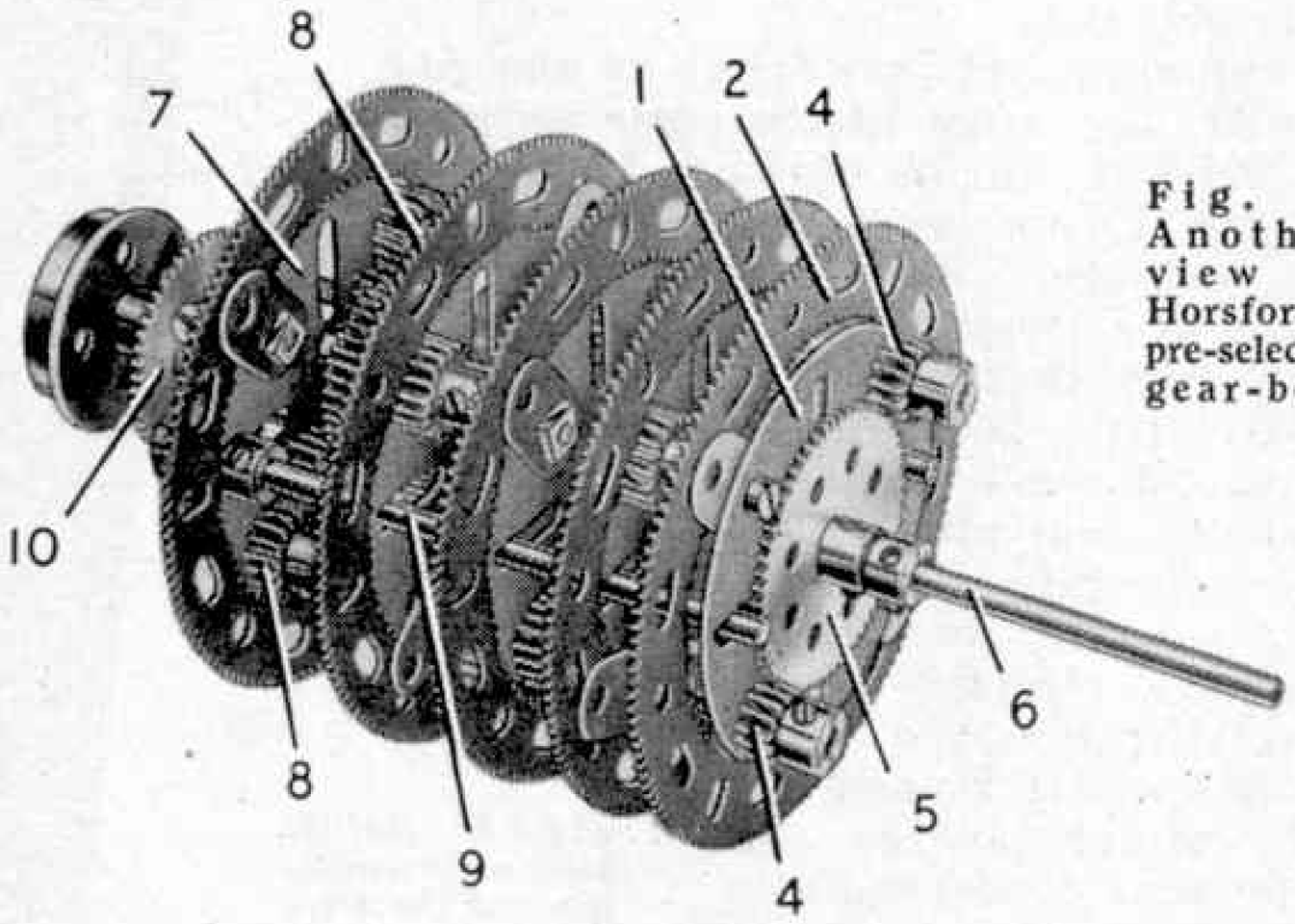


Fig. 2. Another view of Horsford's pre-selector gear-box.

These two smiling Mexican boys won prizes in a recent Meccano Competition. They are (left) Jose Lopez de Lara and (right) Jaime Lopez de Lara, and they live in Guadalajara.

supported in $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates bolted to a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate. The free end of the roll is passed round three 1" Pulleys, each fitted with a Rubber Ring and fixed on a Crank Handle The paper is pressed lightly against the Rubber Rings by a Flat Trunnion bolted to a $2\frac{1}{2}''$ Strip, which is supported by a Double Angle Strip. The roll of paper is located between two $5\frac{1}{2}''$ Strips passed over the $3\frac{1}{2}''$ Rod and the Crank Handle and held in place by Spring Clips. A stop to control the length of ticket issued is provided by a 2" Rod that slides in Angle Brackets and engages the set screw in a Bush Wheel fixed on the Crank Handle.

This simple model will provide a lot of fun for the younger members of the family, and it can be built entirely with parts in a No. 1 Outfit.

A FRICTION DRIVE MECHANISM FOR USE WITH A MAGIC CLOCKWORK MOTOR

Some time ago I received a letter from an overseas reader of the *M.M.*, Mr. J. H. Dodwell, San Fernando, Trinidad, whose son is a keen Meccano model-builder. Mr. Dodwell obtained a *Magic* Clockwork Motor to drive the models his son builds, but as this Motor is non-reversing some difficulty was experienced in using it in cranes, in which it is necessary to raise and lower a load. Mr. Dodwell set to work to solve the problem, and sent me details of the ingenious mechanism he devised specially for cranes operated by a *Magic* Clockwork Motor. With this arrangement the Motor is used to raise the load and a simple device is included to disconnect the drive to the winding shaft to allow the load to be lowered under its own weight.

The mechanism is shown in Fig. 4, and it will be seen that the Motor is bolted to a baseplate and is connected by a Driving Band to a $\frac{1}{2}''$ fixed Pulley 1 on a $3\frac{1}{2}''$ Rod. This Rod is supported in two Flexible Plates strengthened by $2\frac{1}{2}''$ Strips, and Spring Clips are used to hold the Rod in place. The winding shaft is a $3\frac{1}{2}''$ Rod 2 that carries a 1" Pulley fitted with a Motor Tyre 3. At one end this Rod is mounted in a $2\frac{1}{2}''$ Strip that covers the slotted hole in one of the Flexible Plates, but at the other end the Rod is mounted in the slotted hole in the Plate. The Rod 2 is therefore free to slide slightly in the slotted hole, and the Tyre 3 can be moved into contact with the Pulley 1 to complete a friction drive arrangement. When the Tyre is moved away from Pulley 1 the drive is disconnected and Rod 2 is free to turn in its bearings.

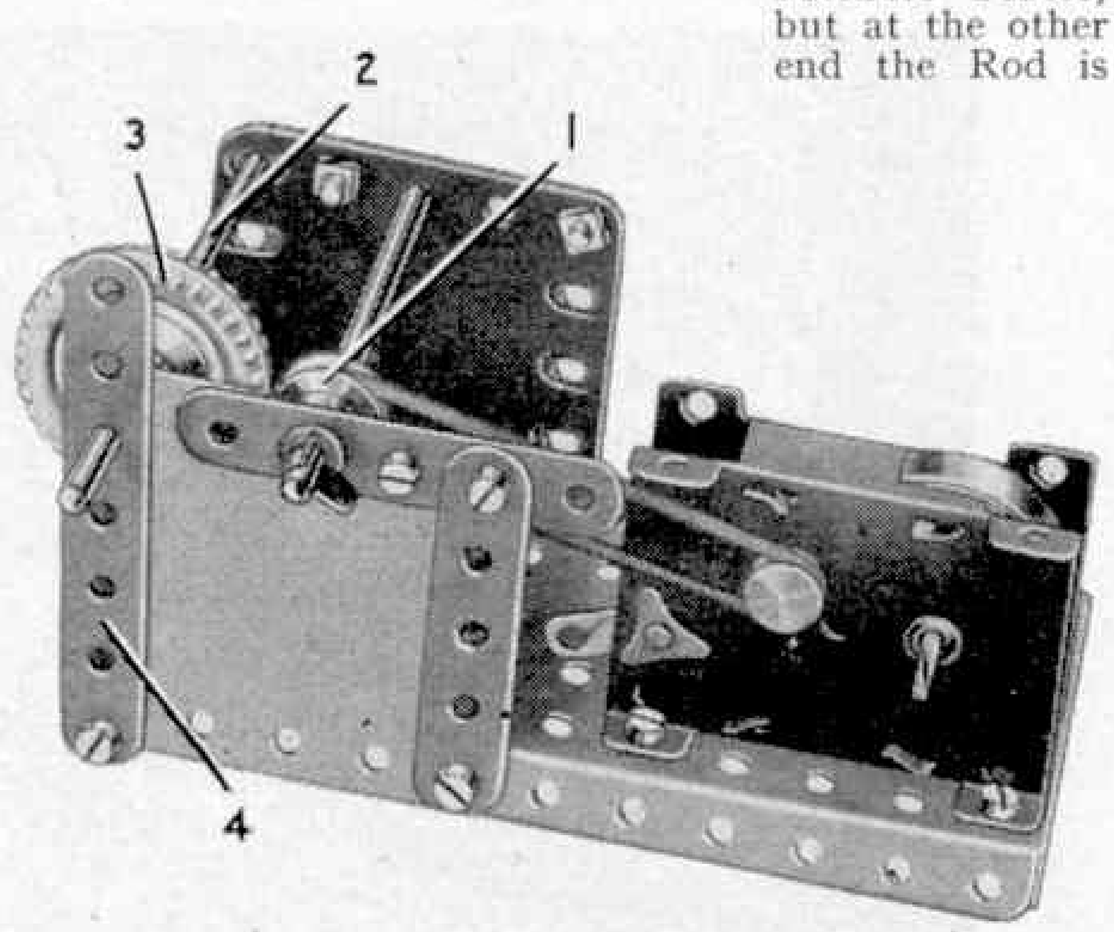


Fig. 4. A friction drive mechanism that gives some advantages of a reversing motor to the non-reversing Magic Motor.

The sliding movement of Rod 2 can be controlled by a lever 4 consisting of a $3\frac{1}{2}''$ Strip. This Strip is passed over Rod 2 as shown and it is pivoted on a bolt attached to the base by two nuts.

In addition to its use in model cranes, this simple mechanism has other applications in model-building. For example it can be used with a *Magic* Clockwork Motor for operating the striker in a pile driver or the lifts in a model elevator. It should therefore appeal to all owners of *Magic* Motors in view of the wider scope that it provides for the use of this handy power unit.

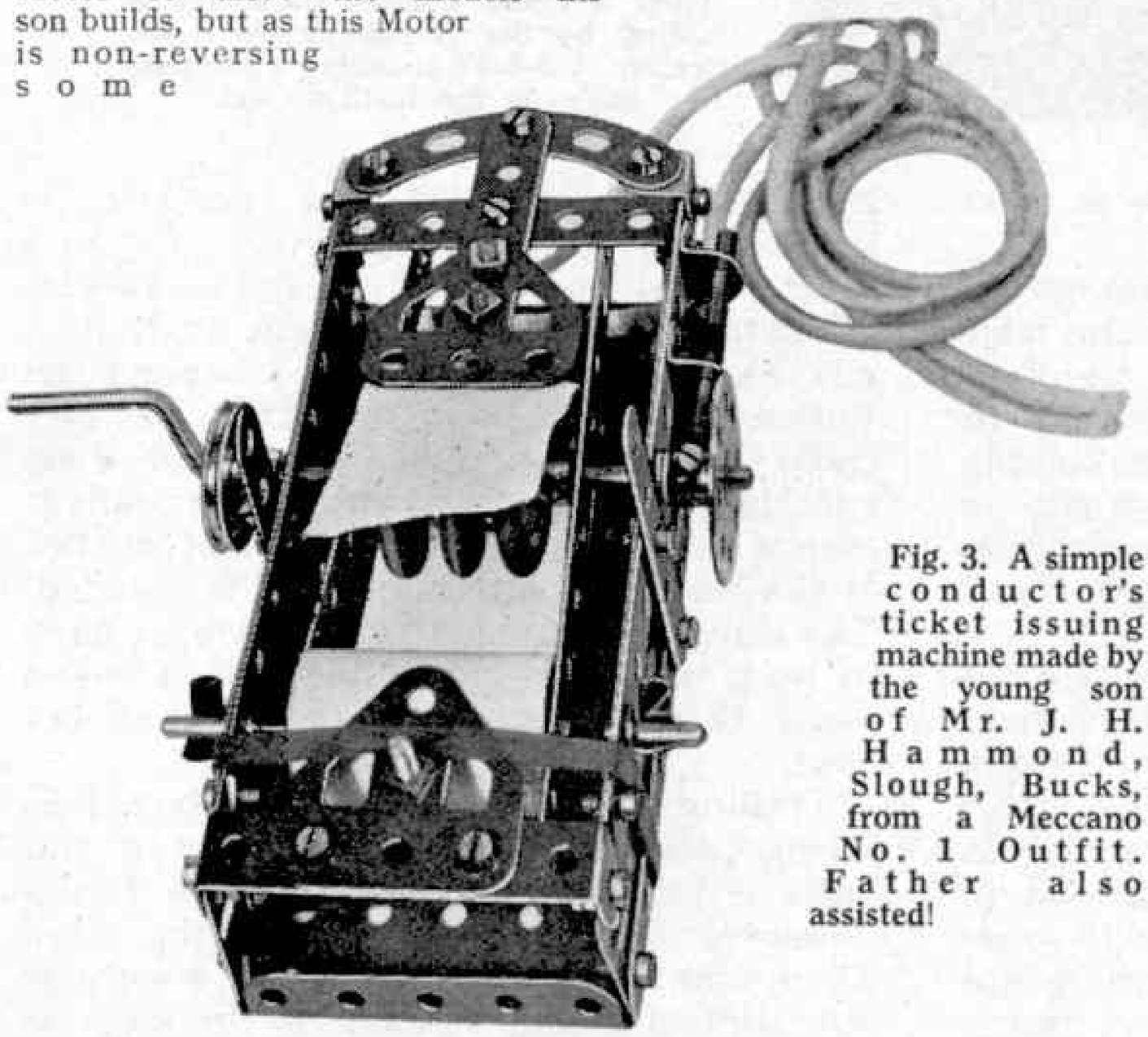


Fig. 3. A simple conductor's ticket issuing machine made by the young son of Mr. J. H. Hammond, Slough, Bucks, from a Meccano No. 1 Outfit. Father also assisted!

HORNBY RAILWAY COMPANY

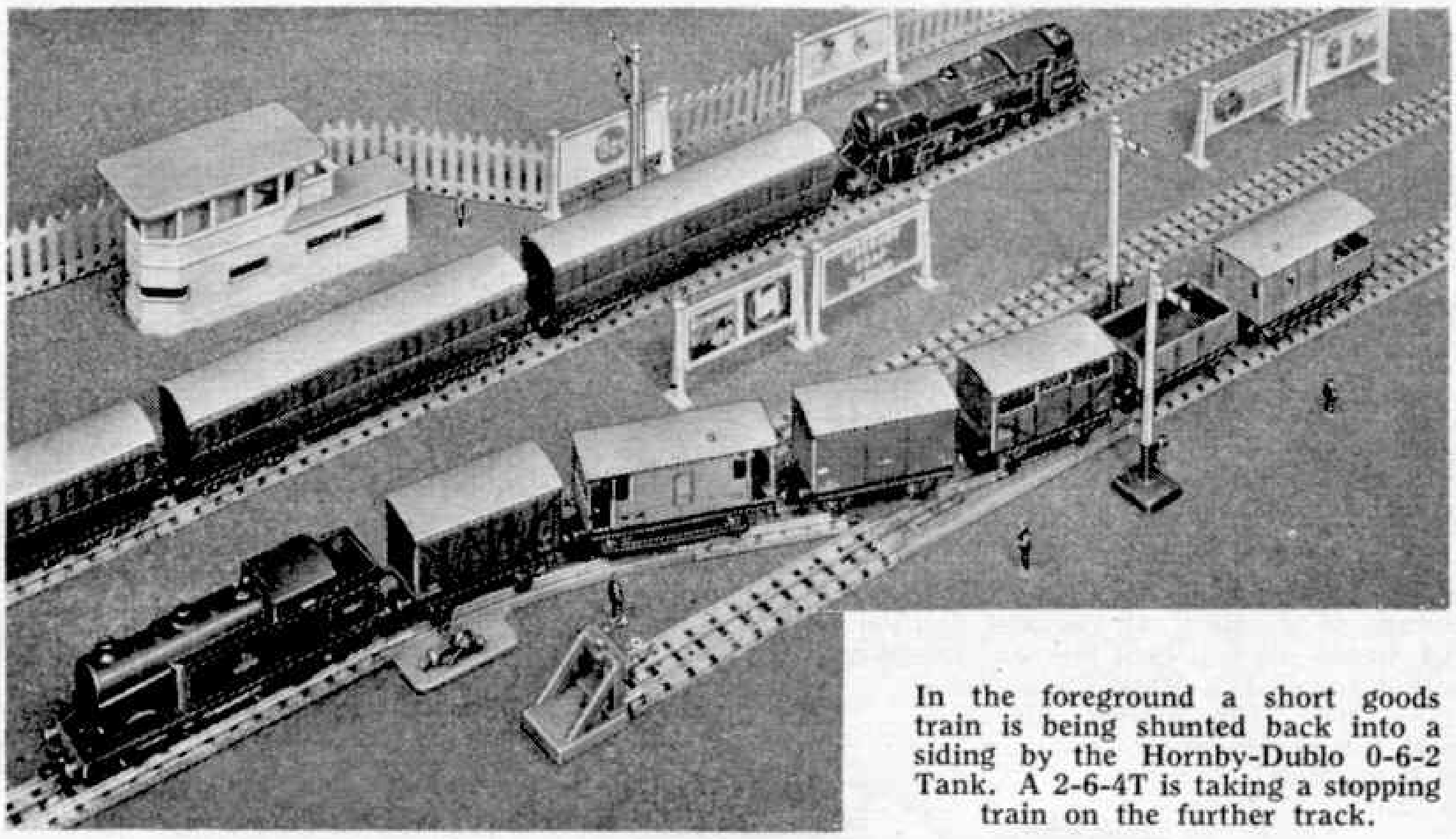
What Next?

By the Secretary

AS a rule, at this time of the year miniature railway owners begin to think about developments that they hope to put in hand during the coming season. I use the word "season" because it is a convenient one, although I know that many of you make your miniature railway seasons last all the year round. But on many railways there is a certain amount of easing-up of activities during the summer months, especially if the weather is good and sunshine calls.

Whatever way you manage things on your individual railways, now is the time to take stock, as it were, and see how improvements in layout, equipment or running can be made during the coming months. There will be developments in the range of Hornby-Dublo, I can promise you, and I shall of course tell you about these when the time comes.

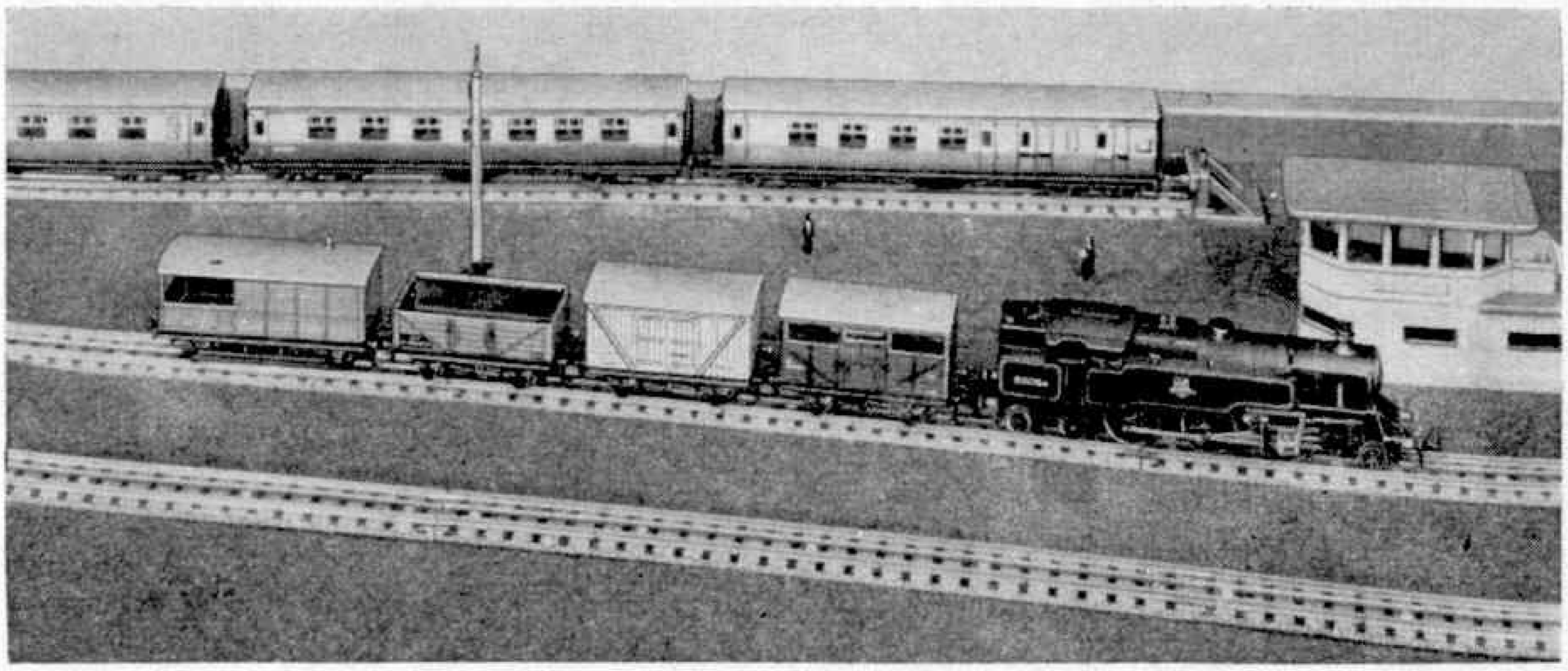
In the meantime the pictures that I have for you this month provide several talking points, and we might as well begin with the illustration on this page. This shows part of an ordinary two-track main line, with a siding connected to one of the main tracks. At first glance it looks as though the goods train is running out of the loop on to the main line, but a glance at the signals will show that this is not so. Actually the train is *backing* in through the trailing crossover made up of two Right-Hand Points. Two Points are used, in order to provide the short Buffer Stop length or overrun that is invariably seen at the ends of running sidings of this kind. The same arrangement can be made on loop lines and the incorporation of this feature is a realistic improvement because this practice is followed on the real railways.



In the foreground a short goods train is being shunted back into a siding by the Hornby-Dublo 0-6-2 Tank. A 2-6-4T is taking a stopping train on the further track.

On your own railways, a special advantage of the arrangement is that if you wish to extend the siding beyond the Buffer Stop, you have the Points already there. The removal of the Buffer Stop and the addition of further straight rails is then a simple matter and any disturbance of the siding already laid down is avoided. The siding is arranged so that trains have to back in off the main line, which is the usual thing where dead-end sidings are used.

Trailing points are always preferred to facing points in real practice, but if you have a loop line you must have facing crossover Points at the entering end. Then your train can run straight in without any difficulty and remain in the loop as



Empty corridor stock waits in the background siding while a 2-6-4 Tank takes a short goods train with a W.R. Goods Brake Van along the main line.

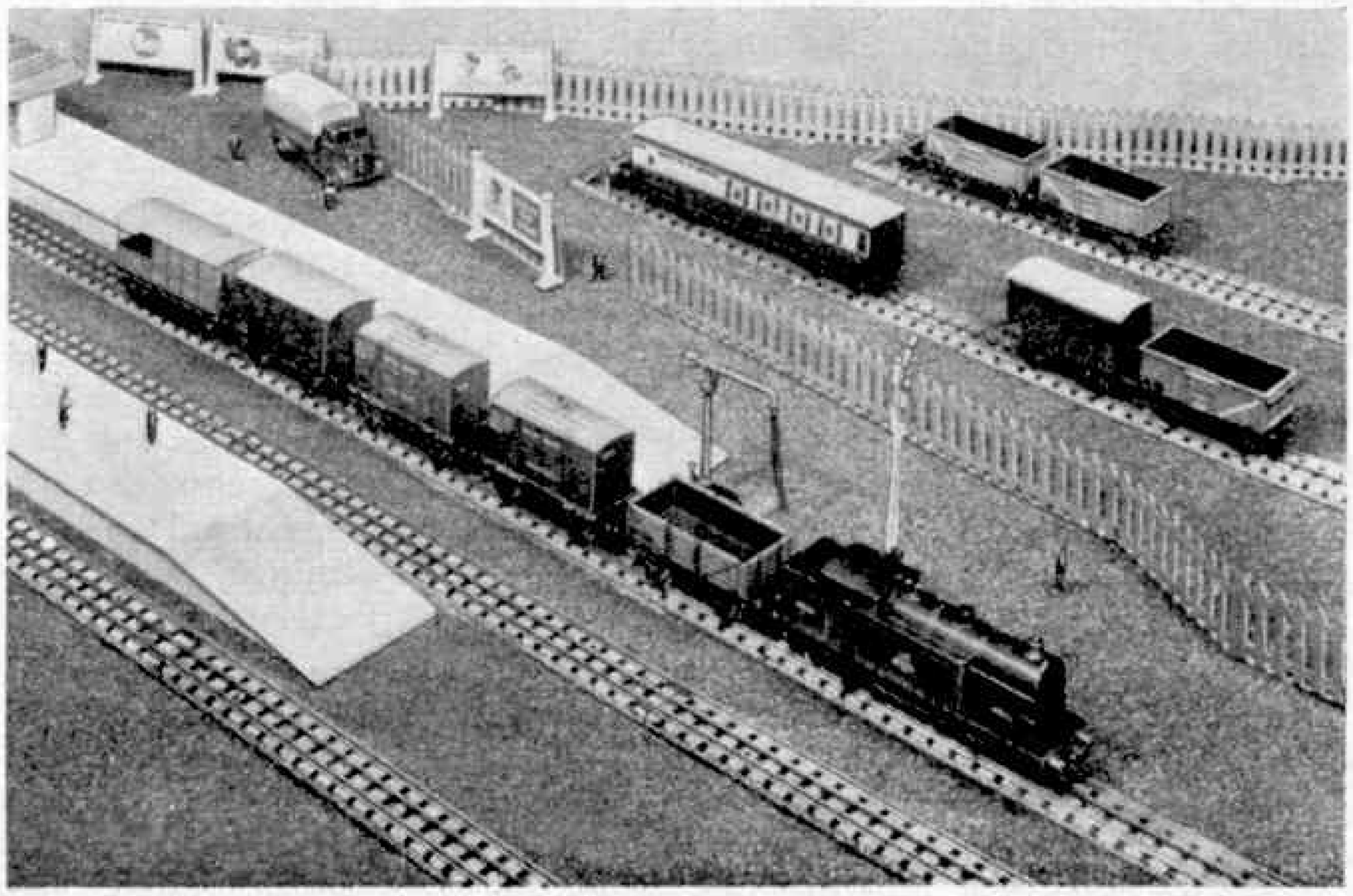
long as required by your working arrangements. Possibly the train is to be refuged, while another train on the main line overtakes it. In that case the siding will form a section that can be isolated, either by the use of Isolating Switch Points and an Insulating Tab, or by means of the Isolating Rail and a Tab if Electrically-Operated Points are employed.

A point about the formation of the short freight train in this same picture is the fact that although there is a Goods Brake Van at the rear of the train, as usual, there is another Goods Brake in the train. This has no working significance, but the Van is simply being run down the line in this way as it is required for duty elsewhere. This sort of thing is often seen in local workings and on occasions several brakes, often of varied types, can be seen forming a little train of their own.

In our miniature train the rear van of course is the recently-introduced Western Region Goods Brake Van, while that nearer to the engine is the well-known double-ended London Midland type of vehicle.

Among other recent rolling stock introductions are the Low Sided Wagons with Containers that I mentioned to you a month or two ago. I know that these are proving extremely popular, and I expect that many of you are already planning the expansion of your Container services.

In actual practice this method of transporting goods is becoming more and more widespread. Sometimes special consignments require a complete train of containers and often these have bills attached to them drawing attention to the particular product that is in transit. This is an idea to follow up. You can make your own little bills, or you may be able to adapt these from printed labels and so on that are to be found on the cartons and containers in which things of all kinds reach your homes.



A train with Hornby-Dublo Furniture Containers passes a station made up of two Island Platforms, with Extensions. In the yard are several Mineral Wagons.

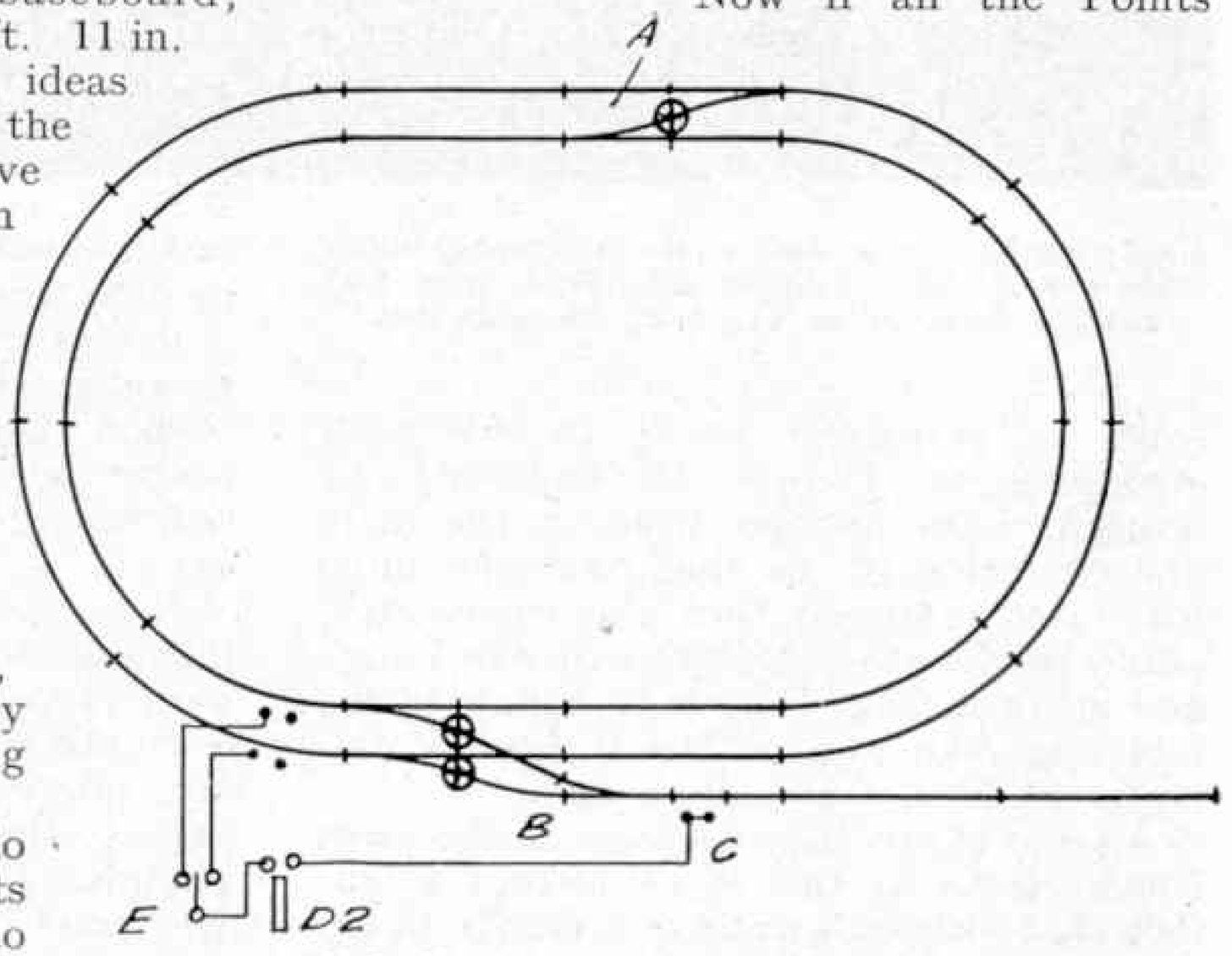
Dual Control in Hornby-Dublo

THE Hornby-Dublo layout pictured in the upper illustration on the next page belongs to David and Michael Brown, of Greenford, both keen H.R.C. members. These boys, with the aid of their father, have managed to get a good deal of railway on their present baseboard, which measures 6 ft. by 3 ft. 11 in.

Each operator has his own ideas about running a railway. So the layout has been planned to give each his own control point. In fact, like British Railways, the system has Regions and Regional Managers! But there are only two of each, not six.

Many Hornby-Dublo Accessories have been used, but other articles are home made, including a terminal station. There is a large tunnel covering one end of the board, and David and Michael really enjoy seeing the trains going in and out of the tunnel.

Probably many Hornby-Dublo enthusiasts have similar layouts with two Controllers. One who has, and who wishes to be known quite appropriately, as *Linesman*, has sent in the accompanying diagrams of his own layouts of this kind. The upper one on this page shows the popular basic arrangement of a double track oval with Points forming a crossover from one track to the other as shown at "A", there being an Insulating Tab between the two Points. With this arrangement, trains can be run independently on the inner and outer tracks, and they can be switched from one track to the other.

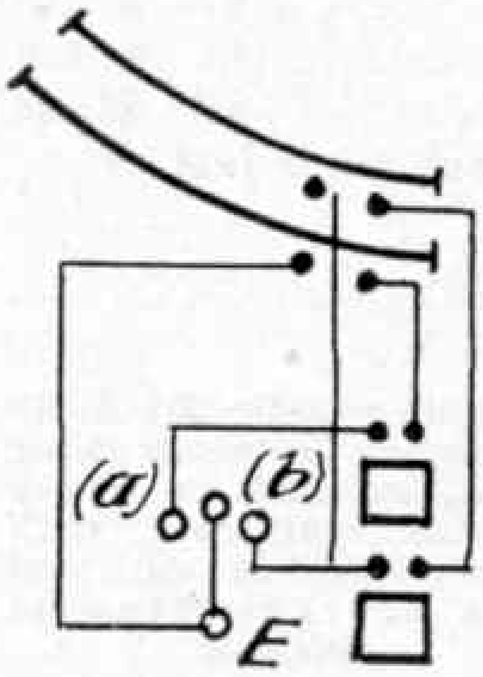


A double track main line, with control arrangements as described in this article.

In the lower part of the diagram there is a siding that is connected to both the inner and outer tracks, as shown, and Insulating Tabs must be used at each of the points indicated, unless Isolating Switch Points are used at "B".

Now if all the Points are electrically-operated, and Insulating Tabs are used, the track in the siding can be so wired that it can be under the influence of either Controller at will. How this is done is shown in more detail in the diagram. An Isolating Rail "C" has its terminals connected together by a wire which leads to a D2 Switch. The other terminal of the D2 Switch leads to a double-throw switch "E". (Suitable small switches can be purchased in many electrical shops). This double-throw switch has three terminals; one is used by the wire from the D2 Switch and the others are connected to the respective Terminal Rails for the inner and outer tracks, taking care in each case to use the centre rail terminal at each Terminal Rail. The Terminal Rails are connected to their respective Controllers in the usual way.

So, if there is a train in the siding that is to be sent on the inner track, the switch E is moved so that the inner track is joined electrically to the D2 Switch. But if the train is to go on the outer track, the



Two Terminal Rails, each forming part of a double track system, and their respective Controllers, with connections so that either track can be controlled by either Controller.

H.R.C. members David and Michael Brown each controlling a separate main line track. Their layout is portable and can be raised to table height on folding legs if required.

switch E is moved to the other position. If the moving contact of switch E has a central off position the D2 Switch need not be used at all.

The diagram on this page shows similar principles applied to a double "crossover loop" arrangement between inner and outer tracks, each of the Isolating Rails being connected to a D2 Switch and a double throw switch exactly as in Fig. 1. A train passing from one track to the other can be held in one of the "crossover loop" lines, the current supply to this being cut off by the relative D2 Switch. Now both inner and outer tracks can be used for other operations.

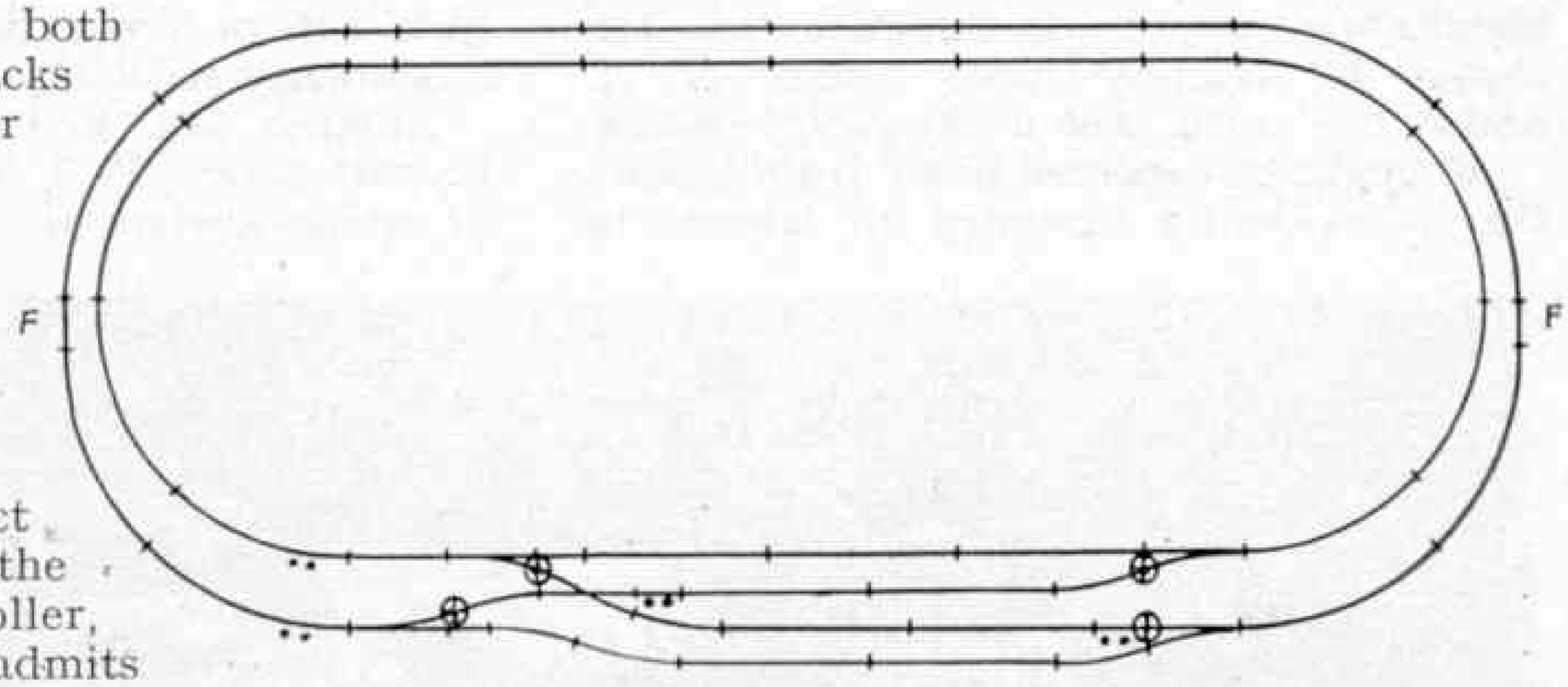
When the time comes for the train to move to the outer track, the switch for the crossover loop line is moved to connect the D2 Switch to the appropriate Controller, the D2 Switch admits current to the crossover loop, and subsequent operations are performed on the one Controller.

A point to notice here is that the Straight Quarter Rails marked "F" at each end of the outer track compensate for the greater distance than usual between the inner and outer tracks at the bottom of the diagram, as a result of the crossover loop arrangement. In addition, the spacing between the tracks at the top of the diagram is slightly greater than normal.

A useful circuit arrangement, which can be used for either of the layouts shown, is to connect the two tracks so that each can be controlled by either Controller. This is shown in the small diagram on the opposite page, which includes the Terminal Rails for the inner and outer tracks, a switch E and the two Controllers. The inner track is always joined to Controller 2. But the outer track circuit passes through the switch E. So when the switch is in position (a) it is joined to Controller 1, and when it is in position (b) it is joined to Controller 2.

Normally the switch E is kept in position (a), but when it is desired to move a train from one track to the other the switch E is moved to position (b) and the train can be controlled from Controller 2 throughout its journey.

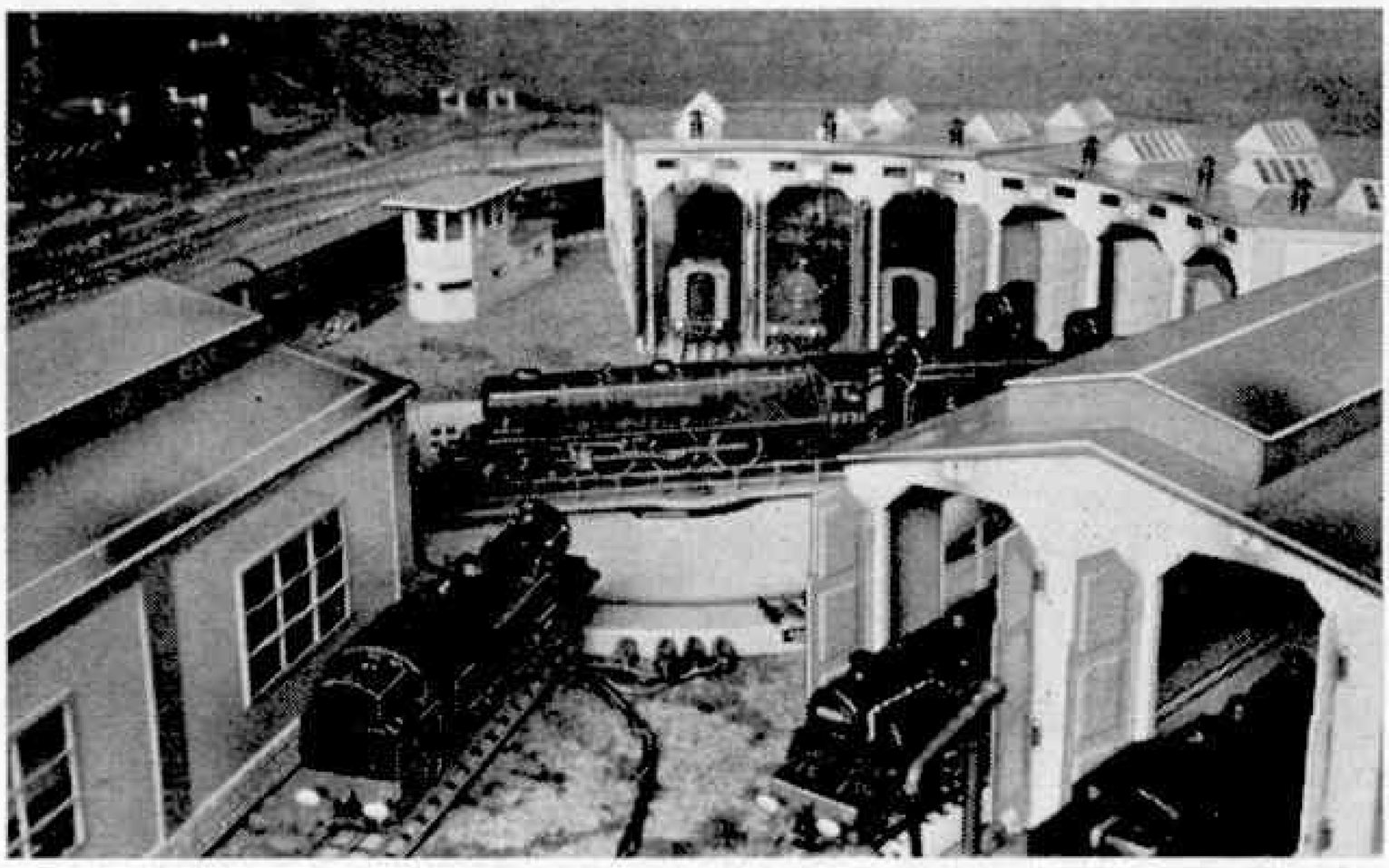
If Isolating Switch Points are used, it would be as well if Insulating Tabs were placed between the Points on the straight sections of the extreme inner track and outer loop line. There they will act as safety devices.



A double track layout with facing and trailing "Crossover loop" arrangements as described on this page.

Engine Depots, Large and Small

IN spite of the space restrictions that affect most layouts, Hornby-Dublo owners usually manage to give a realistic air to their "engine roads" or sidings. One accessory that must be used here is the Hornby-Dublo Water Crane, and if a siding for engine purposes is a long one two Cranes can well be used, one towards each end of the track concerned. Another good trick is to include an additional track on which Hornby-Dublo Coal Wagons can stand. This can easily be done if there is space, and the effect is splendid, as these Wagons, with their dummy loads of supplies for the engine tenders or bunkers, are just right for the purpose.

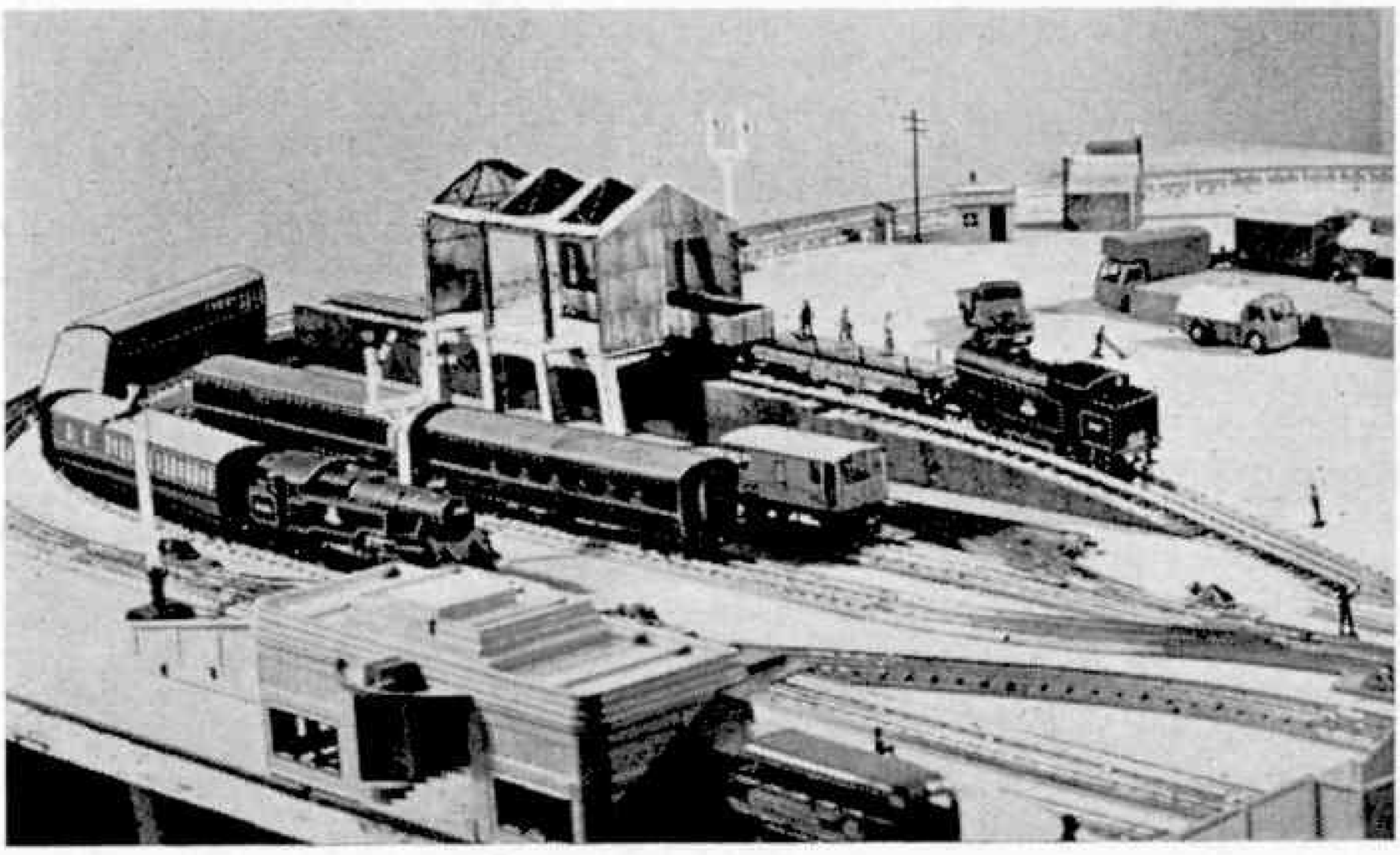


The motive power depot on the layout of Sgt. P. T. Harper, R.A.F., where the engine sheds are served by a central turntable.

Layout conditions also give fine opportunities for making locomotive premises look just like the real thing. Many enthusiasts have discovered this. A good example of effective arrangement is the inclusion of a locomotive coaling installation under construction on the layout of Hornby-Dublo owner K. J. Smith, of Cardiff, seen in the picture below.

As might be expected in a Cardiff layout, this is evidently intended to follow the general lines of Western Region coaling stages. The train on the incline, up which the coal wagons will eventually be propelled, is loaded with construction material. Engines requiring to be coaled remain at normal ground level, their tenders being filled from tips that are fed from the loaded wagons alongside the stage. This is an interesting type of plant to reproduce in miniature and it does not look out of proportion to the rest of a moderately-sized layout.

Engines are well catered for on the layout of Sgt. P. T. Harper, R.A.F., part of whose system is shown in the picture above. Its owner had ample space, so he fitted in a regular motive power depot, the different radiating roads being served by a central turntable. The effect is really impressive.



A locomotive coaling installation under construction by K. J. Smith, Cardiff.

Club and Branch News

WITH THE SECRETARY

GETTING THINGS SPICK AND SPAN!

In the Club and Branch calendar September is a month of planning and preparation, and while the summer programme runs through its final weeks much is being done—or should be!—to get ready for the coming winter season.

It is the time when, in Clubs and Branches not associated with schools, everybody gets together, rolls up their sleeves and sets to work to "spring clean" the Club or Branch Room and, if necessary, give it a fresh coat of paint; when all the varied equipment is examined, cleaned, and repaired as necessary. Meccano parts which have suffered at the hands of vigorous and enthusiastic users may need straightening or adjusting, and perhaps re-enamelling in places—although it is amazing how much hard treatment the original paint will withstand before showing signs of wear and tear. Similarly, the Branch track should be closely inspected, faults remedied, and the rails, points, etc., thoroughly cleaned. It is absolutely essential to make sure that the track is in good order, and that locomotives, and rolling stock too, will do what is asked of them.

Preparations of this kind help greatly to ensure a successful return to Club and Branch Room activities.

PROPOSED CLUB

NORWICH—Mr. W. J. Rose, 35 Cadge Close, Cadge Road, Norwich.

CLUB NOTES

MILE END (PORTSMOUTH) M.C.—A recent Open Night, when twelve Meccano models were on view and the Branch electric and clockwork layouts were in operation, was very successful. Another attraction for the visitors was a display of members' foreign stamp collections. An interesting talk on *Printing*, with demonstrations, has been given by the Secretary, and A. Firman has described his visit to a bookbinding works. A debate between the Club and its associate H.R.C. Branch on *Transforming the railways into high speed roads* ended in favour of the railways. A Dinky Toys layout night proved very popular. Club roll: 30. *Secretary:* Mr. A. J Nicholson, 213 Sultan Road, Buckland, Portsmouth.

EXETER M.C.—In spite of the attractions of outdoor activities, model-building has been well maintained, and models recently completed have included a suspension bridge, coal chute and a loom. At one meeting unexpected talent among the members was discovered, when it came to light that Peter Phillips plays the cornet and David Hodgson the clarinet; that Sydney Dyer can compose poetry while you wait, and another member excels at portrait drawing. Club roll: 35. *Secretary:* P. Phillips, 12 Alpha Street, Heavitree, Exeter.

NORBURY (LONDON) M.C.—Outdoor meetings have been held in South Norwood Recreation Ground. Recent railway outings of special interest were the Inter-Regional *John Milton Special*, organised by The Ramblers' Association, and visits to B.R. Swindon railway shops and to York. *Secretary:* D. Bradley, 19 Stuart Road, Thornton Heath, Surrey.

BRANCH NEWS

KIDDERMINSTER MODEL CLUB—Meetings are held on Thursdays, from 7 p.m. to 9 p.m., in the vicarage of St. George's Church. On railway evenings members bring part or all of their equipment, and to model-building meetings they bring models they have constructed at home. A social and games evening is held monthly, and an Exhibition every six months in the Town Hall. Railway outings also are popular. *Secretary:* J. Steward, 360 Stourbridge Road, Kidderminster.

HALE END—The Branch have been fortunate in obtaining a separate, large room in which to operate their model railway, and now also have better facilities for model-building. Model car racing has become popular, and the Branch's four model cars, fitted with Jetex motors, were an additional attraction when demonstrated at a recent Exhibition. *Secretary:* A. L. Coe, 463 Hale End Road, Highams Park, London E.4.

The "Meccano Gunners," 1956. This enthusiastic football team is attached to the St. Thomas District (Exeter) M.C., and the photograph was taken by Brian Madge, the Club Secretary, when the team were playing a match at Crediton last season. Mr. M. C. Hodder, Leader, seen in the centre of the back row, has described the team as "a very happy lot of boys."

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For other Stamp Advertisements see also pages 490 and xx

Stamp Collectors' Corner

By F. E. Metcalfe

HOW IT ALL STARTED

TO continue with my notes on the world's most popular hobby, it might be a good idea to consider how it all started. It was during the last World War that the centenary fell due of the first postage stamp, the ubiquitous Penny Black; and after a good deal of protesting, our Post Office issued a rather mediocre set of six stamps bearing the portraits of Queen Victoria and King George VI in honour of an event that a number of other countries thought so important that they also issued sets.

It was only after questions had been asked in Parliament that the postal authorities gave way. This grudging attitude was to be deplored, for other countries, the U.S.A., etc., were considering issues, and no doubt the conduct of the country chiefly concerned did a good deal to deter them. Anyhow the "Penny Black" itself really started something when it appeared. One by one other countries adopted the idea of adhesive stamps, and in no time people started to gather these sticky bits of paper.

Collections were being formed as early as the eighteen-fifties, and there is a record going back to those years of a young lady actually advertising for stamps. There were relatively few about, and they were sold for very little. Many of the rarities now fetching hundreds of pounds, such as the gems being dispersed in New York by Harmers from the Caspary collection, could in those days have been bought for as many coppers. We have all heard, *ad nauseam*, the well known story of a sack full of "Cape Triangulars" bought for five pounds. I don't suppose that £5,000 would buy half of them today.

Yes, in the early days stamps were nothing like as abundant as they are now, and collectors included anything that looked like a stamp—and many things that didn't, with cut-outs from envelopes and wrappers, as well as seals and cigar bands! Those were the days of general collections. Later on I will have something to say about the latter, which I hope will be carefully considered, for the point is an important one.

Apart from collecting almost anything even remotely resembling a stamp, those early gatherers—they didn't take themselves so seriously in those days and did not give their hobby such a high sounding title as philately—did not concern themselves much about the condition of the stamps they stuck in their collections, or even how they stuck them in, as many perspiring dealers can testify after the tough task of dismantling one of those old collections. How things have changed in this respect!

Nowadays I cannot repeat too often the advice to buy stamps in perfect condition if they are to be

considered worth collecting. Young collectors often overlook this fact. They see a stamp, catalogued at a high price, selling at a low figure and think they are getting a bargain. They are not if its condition is poor. One of the reasons why the Caspary collection is bringing so much money is because all the stamps are in such perfect condition. Although the stamps are mostly early issues, they were collected by modern standards.

There are extreme cases where very valuable stamps are in poor condition, but none of these is likely to come our way. Nor must it be thought that it is only in the case of old stamps that one needs to be careful about condition. One of the reasons why I am not keen on packets, is that there can be no picking, and in some instances poor copies are disposed of in this way. Not all packets contain duds. Those from good dealers are well made up, but better try and see what is in the packet, if this is possible, before buying.

And now we come to the question of rarity, or otherwise, of old stamps. Let me say right away, age has no connection whatever with value. There are stamps nigh a hundred years old that are only worth a few pence, even if they are quite presentable in appearance and undamaged. On the other hand stamps issued a year or two ago may be worth pounds. Only a month or two back Pakistan issued two overprinted stamps to commemorate the 10th anniversary of the United Nations. The face value was about 1/4, but this pair already sells for about 10/- a set.

It's all a question of rarity and demand, and if owners of old stamps would only bear this in mind they would save themselves a lot of disappointment, and dealers many embarrassments. It is often one of the unpleasant tasks of a stamp dealer to tell people, obviously in need, bringing into his shop old stamps which they are sure are valuable, that their treasures are worth very little. It is quite true that the dealer is sometimes as deeply hurt having to give the bad news, as the owner of the stamps who has to receive it, but there it is.

I remember hearing of such a case only recently. An old lady went into a certain stamp shop, and handed a small album over to the dealer. Explanations followed, and according to the story that collection was the last possession which the old lady had belonging to her late husband. She was sure that it was "worth a lot of money for the stamps were hundreds of years old." It was only because the cash was needed badly that she was willing to sell.

Alas, the stamps were almost as old as stamps could be, but apart from their poor condition, they were of the commonest kind, and even the offer of a few shillings, which was indignantly refused, was merely made out of sympathy.

But let us get back to the early days of collecting, when anything which looked like a stamp was collected. It is a fact that some of the items that went out of fashion are now becoming rather popular again, that is if they have any connection with postal history. I know of a dealer in Liverpool who bought a huge sack of covers a few years ago. After running through the bale he sold most of what was left—pre-stamp covers—for a few pounds. He would be glad to buy it back now for ten times what he got for it.

But postal history is too complicated, so let us stick to stamps.

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H. B. LANG, Burnbank, Mauchline, Ayrshire

For other Stamp Advertisements see also pages 488 and xx

Stamp Gossip

THE SIMPLON TUNNEL

Recently there were celebrations in connection with the 50th anniversary of the opening of the Simplon Tunnel, and a special stamp was issued. There have also been pictures in the *M.M.* of some interesting postmarks, and several readers have written to say how attractive they found these.

An engineering work like the great Simplon Tunnel is something that must be referred to in a magazine such as ours, but instead of showing the stamp I thought that an attractive postmark would be more of a novelty. So here it is.

SPANISH MOROCCO

Recent political events have brought this country into prominence, so as it is quite a time since I referred to Spanish stamps, I thought it would be a change, as well as topical, to ask the Editor to illustrate one of a set of ten stamps issued a few months ago to commemorate the 30th anniversary of the Caliph's accession to the throne of Spanish Morocco.

It's worth bringing in this stamp, just to have an opportunity of using that romantic title Caliph, which really seems only to belong to those fairy stories we used to lap up when we were young and impressionable. We stamp collectors know better, but surely the man in the street would never imagine that people like caliphs are still going strong.

BUDDHA JAYANTI

Two countries have issued stamps to commemorate the great event of Buddha Jayanti. They are India and Ceylon, and our good friend Mr. E. R. Kooka has been kind enough to send us copies of the two stamps that India produced, as well as some very interesting notes on the meaning of the designs.

Of the two values, the 2a., illustrated at the top of the page, shows a symbolic illustration of the Asvattha Tree at Bodh Gaya, under which Gautama attained enlightenment 2,500 years ago. The other value, the 14a., depicts a replica of the huge umbrella that once surmounted the colossal Bodhisattva Statue at Sarnath, carved in the reign of the Kushan King Kanishka, in the first or the second century. On the right of the umbrella is another representation of the Bodhi tree, and on the top of the umbrella itself are many interesting symbols.

Ceylon issued two sets for the same event, one stamp on 10th May, which was also surcharged for charity, and two more on the great day itself, 23rd May. I would strongly urge collectors to study these stamps, for they are so well worth it, and we all must thank Mr. Kooka for his interesting data.

BELA BARTOK

Nothing gave me greater pleasure when I used to go to Hungary than to have talks with a Professor of the Violin at the Budapest Conservatoire, who had been a close personal friend of Bela Bartok. His reminiscences of their life together in Hungary were fascinating to a degree. Some of those reading these lines no doubt attended some of the functions given by the Hungarian State Company that recently visited London, and were enchanted, as was I, by the gypsy music that was played with such fantastic skill by the orchestra, which incidentally had several gypsies amongst its members. Well, friend Bela Bartok would not have been amused. He detested gypsy music, according to what my Budapest friend used to tell me, for he claimed that it was a mere makeshift of pretty noises—which is more than can be said about a lot of what passes for music nowadays.

Anyhow, I was glad to get the stamp bearing the portrait of the great Hungarian composer, which is part of a set issued some time ago. It can still be obtained for a small sum. Naturally the set is very popular with thematic collectors.

THE MONTH'S TIP

I hope that readers will not complain if I generally tip the stamps of our own Commonwealth. I have to do this because, as far as collecting in our own country is concerned, it is the British Commonwealth stamps that are in most demand, and are most likely to increase in price. They are of course popular also in the U.S.A. and elsewhere.

This month I am going to make what the Americans would call a package tip. If you are looking for a new country to collect, one which will not be costly and will well repay the trouble, go in for used Brazilian commemoratives, those issued during the past ten years. They are not difficult to get now; they will get much scarcer as time goes on, for they are becoming very popular.

My Football Years —(*Continued from page 447*)

him out until the last few minutes, but he got one quick stab at the ball and it was a goal. What a marksman he was!

I was told that I had broken United's individual goal-scoring record with my 42 goals. It had been held by Scotsman Tommy Jennings, and he wrote from his native Glasgow to congratulate me.

Among my early goal-scoring days was one when that famous England leader, Tommy Lawton, paid me a tribute that was deeply appreciated. I got a hat-trick against Brentford and Tommy dashed across, shook me by the hand, and said: "*I always regarded you as a good centre half, now you're a good centre forward!*" That coming from a player I had admired so much was praise indeed.

I returned to international Soccer at 21 and I've played many games for my country since—at centre half, centre forward and inside forward. I've had the unusual experience of playing for Wales at centre half while being the regular centre forward with my club, and of turning out at centre forward for Wales while being centre half with United!

One game that I enjoyed a great deal was my first outing at Wembley, for I was playing centre forward in a thrilling match against England. And England's pivot that day was redoubtable Billy Wright, against whom I bagged a couple of goals.

My next big honour was to play at centre half for the United Kingdom against the Rest of Europe; and to be on the same side as illustrious Stan Matthews, as well as to have another go at the continental cracks, made it a memorable occasion for me.

Often, during my career, I've heard people say that I don't throw my heavy weight about enough. Well, I don't worry about such remarks. I consider that Soccer is a game of skill, and once a big fellow like me starts to hurl his weight about he's in danger of taking unfair advantage of others. I prefer to try to keep it a game of skill and I'll never change my outlook.

My outlook on all my positional switches is simple. I've been called upon by managers Buckley and "Raich" Carter to play in four first team positions. My brother Melvyn has played in even more for Swansea. I regard it all as good experience. Different roles and different techniques all help one to improve one's self as an all-round footballer.

Another controversial point that keeps catching up with me is transfer talk. They've mentioned tremendous sums in connection with my name. Well, I try not to let that sort of talk affect my Soccer. I try to be a team-man. And, as for team spirit, you'll find nothing better wherever you go than that we have at Elland Road. It was team spirit that won us promotion last season—the sort of team spirit that ensures that somebody is always there, backing up, if somebody else slips up.

To be captain of such a team was probably my biggest of all honours. And now we're hoping to make team spirit pay off in a big way in the First Division.

Week-end at Rheims—(*Continued from page 450*)

the red cars and the crowd rose to its feet and cheered. This was real motor racing—the spectacle *par excellence* of a closely fought Grand Prix. Then came the anti-climax—the Vanwall pulled into its pit with fuel injection trouble. The scoreboard showed 38 of the 61 laps completed.

Then it was Fangio's turn for a pit stop. When he got away again we saw the World Champion at his very best as he tried to reach the front of the field where his team-mates Collins and Castelotti were fighting—and fighting really hard—for first place. Fangio, driving as only he can drive, closed relentlessly on Behra (Maserati) who had moved up into third place, knocking off the seconds at an incredible three per lap. But Behra just managed to beat Fangio for third place by five seconds, in spite of the reigning champion's new circuit record of 127.37 m.p.h. on his final lap, while out in front Collins was chased over the line by Castelotti.

It had been a wonderful race, full of drama and excitement, and a wonderful win for Collins at 122.29 m.p.h. And we were all agreed that as well as having more top flight drivers than any other country in the world, we also have a potential world-beater in the Vanwall.

A Scottish Rail Tour—(*Continued from page 453*)

downward at the steep gradient of 1 in 42, ending with the passage of a tunnel 1,000 yards long! We descended the gradient, with vacuum brakes gripping, but before entering Queen Street station we had to wait until the colour light signal at the entrance showed a green aspect, telling the driver that he had a clear road to a platform. About 2½ to 3 minutes after entering the tunnel we emerged gently from the haze of the smoke-laden bore, and our engine stopped at the buffers of the somewhat dingy and unattractive terminus just a few hundred yards south of Buchanan Street Station, our starting point of yesterday.

How Good is the R.A.F.? —(*Continued from page 464*)

transport and anti-submarine designs. As it is, the ten Britannias and two or three dozen Beverleys ordered for Transport Command will only begin to meet requirements. Many more are needed, backed up with strong forces of smaller aircraft such as Viscounts, Twin Pioneers and helicopters. And, even if it still fails to recognise the value of flying boats, Coastal Command would do well to follow the lead of the Royal Navy by ordering Gannets for vital in-shore anti-submarine search and strike duties.

If further proof is needed of the quality of R.A.F. aircraft, it is well to remember that Canberras are being built in America for the U.S.A.F. and are in service in several other countries. Over £120 million worth of Hunters have been ordered by foreign air forces, to which can be added hundreds of Venoms, Meteors, Vampire and Provost trainers and other types.

The fact that Britain holds the world speed and height records shows that our aircraft designers are still second-to-none, and British aero engines remain the best in the world, used by almost every country. Add on the skill and courage of R.A.F. airmen and the craftsmanship of our ground crews, and we need have little fear that the R.A.F. is, or will become, a second-rate Service.

TRANSPORTATION CENTRE R.E.
PUBLIC DAY 1956

Unforeseen circumstances have made it necessary to cancel this event, announced in the August *M.M.*, which was to have been held on Saturday, 1st September.

THIS MONTH'S ARTICLES

	Page
My Football Years .. .. .. by John Charles	444
Week-end at Rheims .. .. .. by Peter Lewis	448
A Scottish Rail Tour .. .. .. by G. H. Robin	451
Steam Traction Engine Rallies .. .. by I. J. Belcher	456
How Good is the R.A.F.? .. .. .. by John W. R. Taylor	462
A New London Taxi .. .. .. by J. Wyndham	473

Fireside Fun

Colonel: "You say you served with the Army in France?"

Cook: "Yes, sir. Officers' cook for two years and wounded twice."

Colonel: "You're a lucky man. It's a wonder they didn't kill you."

* * * *

Hotel Guest: "Do you know that two mice were fighting in my room when I woke up this morning?"

Manager: "Well, what do you expect for five shillings —a bullfight?"

* * * *

Rastus: "That hoss of mine am de fastest hoss in de world. He can run a mile a minit 'cepting foh jest one thing."

Sambo: "And what is that?"

Rastus: "De distance is too long foh de shortness of de time."

* * * *

Stranger to Angler: "How are the fish today, old chap?"

Angler: "I don't know. I dropped 'em a line but got no reply."

* * * *

What is the difference between a comma and a cat?

One is a pause at the end of a clause, the other has claws at the end of its paws.

* * * *

The wandering odd-job man knocked on the kitchen door for his lunch.

"And did you notice that big pile of wood over there?" asked the lady.

"Yes, I seen it."

"Mind your grammar," snapped the lady. "You should say 'you saw it'."

"Lady," returned the odd-job man, "you saw me see it, but you ain't seen me saw it."

"Mother, can I have a cooking lesson today?"

"No, wait till the prices come down. Food is much too expensive these days to practise on."

* * * *

"When I was a boy," recalled the famous lawyer, "my highest ambition was to be a pirate."

"That so?" said his client. "Congratulations."

* * * *

"Well," said the father to little Tommy, "did you like the circus?"

"Yes, it was quite good," Tommy replied, "but I didn't think much of the man who threw knives at the woman."

"Why, what was wrong in that?"

"Didn't you notice he missed her every time?"

* * * *

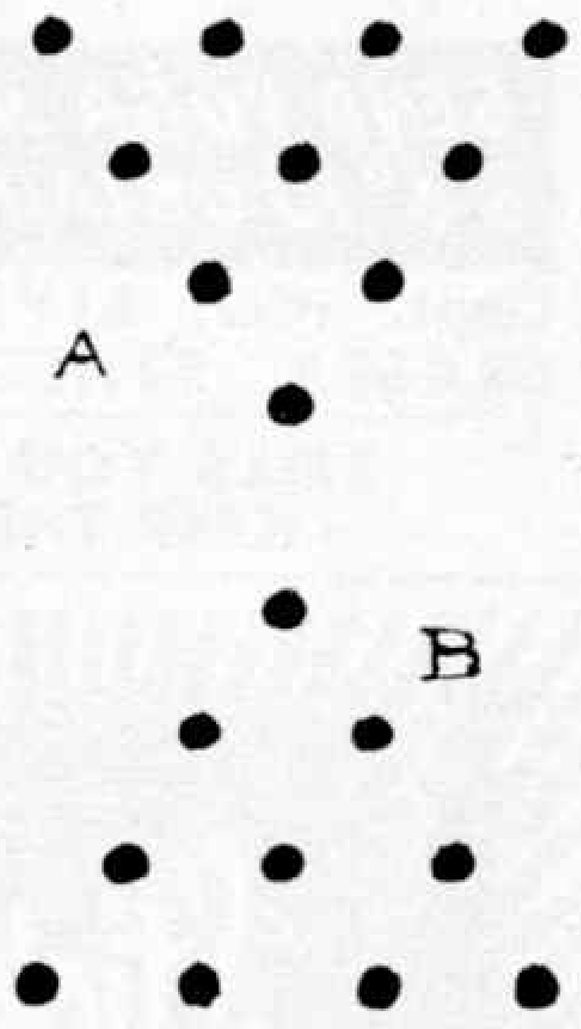
BRAIN TEASERS

A COIN PUZZLE

Arrange ten coins as shown in sketch A below. Now see if you can re-arrange them in the formation shown in sketch B by moving only THREE of the coins.

* * * *

WHAT DAY IS IT?



John went to town this afternoon and came back with a new bicycle. While in town he bought also a new Dinky Toy, visited the Library and went to a matinee at the cinema.

The cycle dealer closes on Thursday and the Meccano dealer on Saturday. The cinema operator cannot visit both the cycle dealer and the Meccano dealer on two of the three days when there are no matinee performances, but on the third day he can visit the cycle dealer, the Meccano dealer and the Library. The librarian is free on Monday and Friday, but if he closed early on Tuesday also he would be able to go to the cinema three matinees a week.

What day of the week did John go to town?

* * * *

HOW MANY FARTHINGS?

What number of farthings can be converted to its equivalent value in pounds, shillings and pence, simply by inserting two colons? To help you we will tell you that it is a five figure number. Now can you find it?

* * * *

SOLUTIONS TO LAST MONTH'S PUZZLES

HOW MANY LETTERS?

The following letters can be discovered in the square:

A.E.F.H.I.K.L.M.N.T.V.W.X.Y.Z.

In fact, every letter that does not include a curve in its shape is represented.

* * * *

WHAT AM I?

The answer is a river.

* * * *

HOW MANY MARBLES?

Bert had 120 marbles.

THEY DART AND FLASH

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WOODSIDE SIGNAL CABIN	13/9
SCALE with LIGHT LUGGAGE	1/–
ELECTRIC TROLLEY and TRAILER	2/6
CYCLE RACK with 4 CYCLES	2/6
PLATFORM ACCESSORIES (set of 7)	2/6

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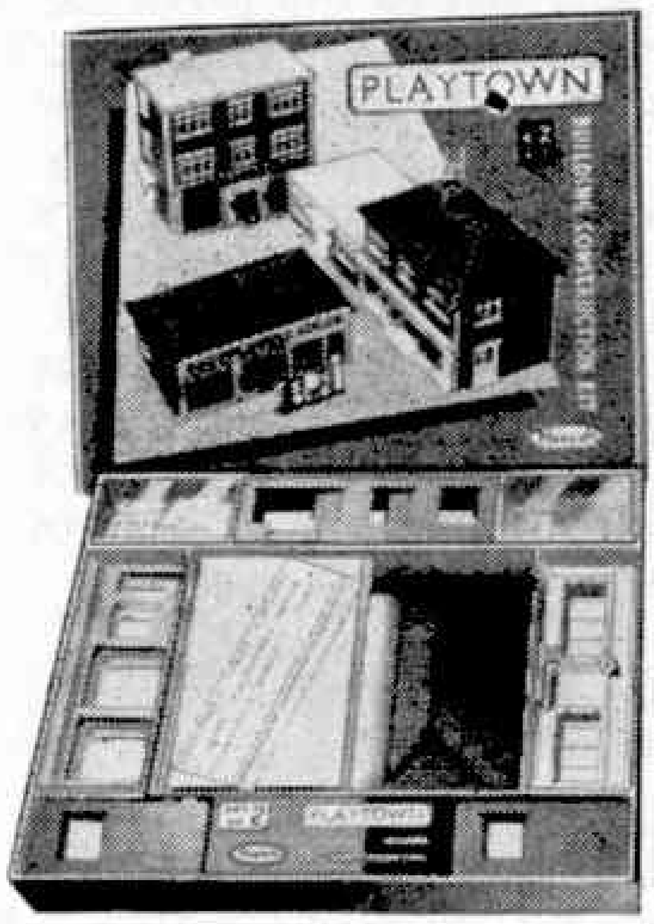

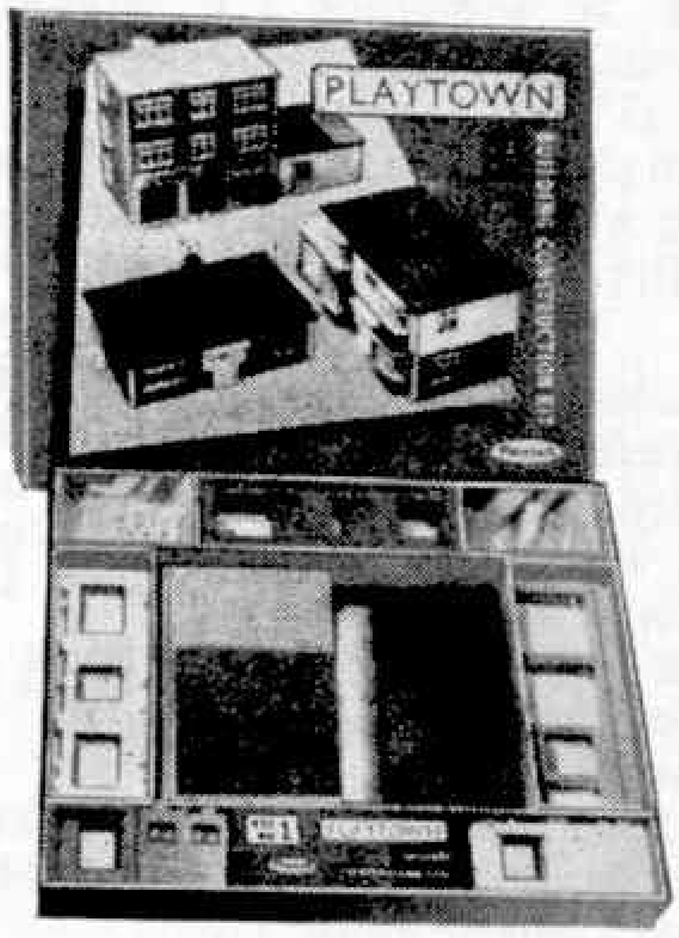

8501 Bungalow .. 8/6
8502 House ..11/9
8503 Shop 8/11
8505 Service Station 9/11
8507 Police Station 8/11
8509 Fire Station .. 8/11
8511 Garage .. 4/11
8512 Mews (Lock-ups) 10/6
8513 Conversion Kit 5/6

Construction Kit:
No. 1 .. ..35/–
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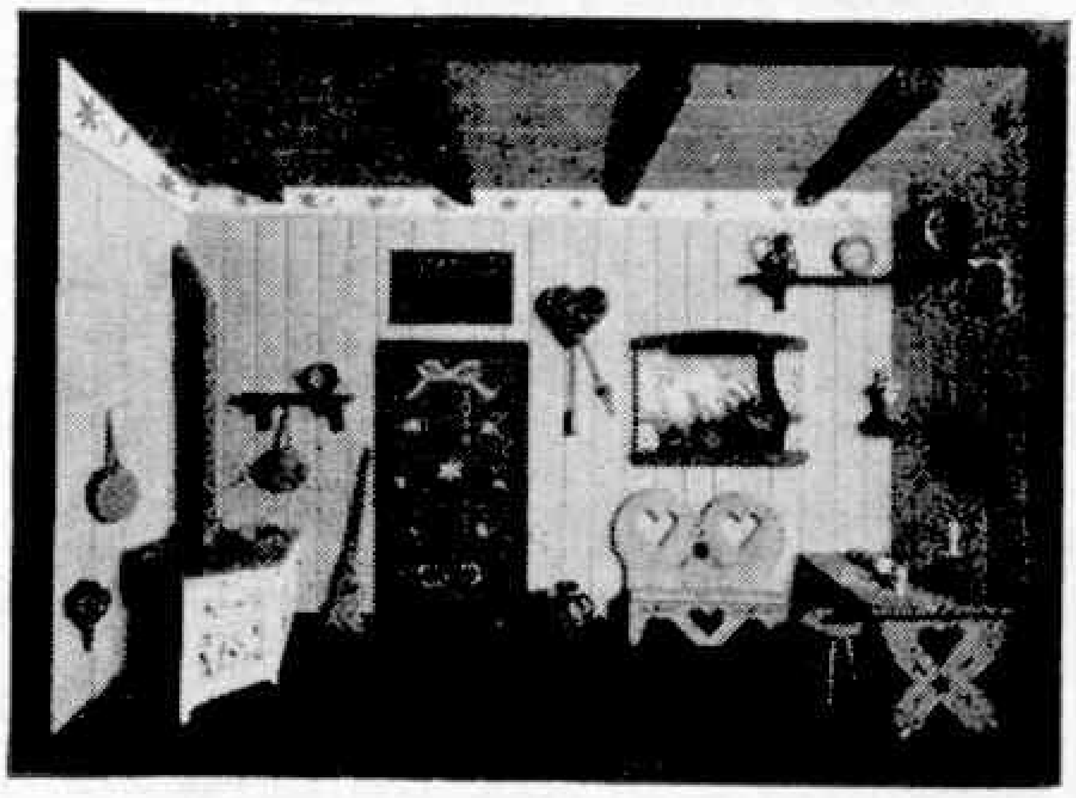

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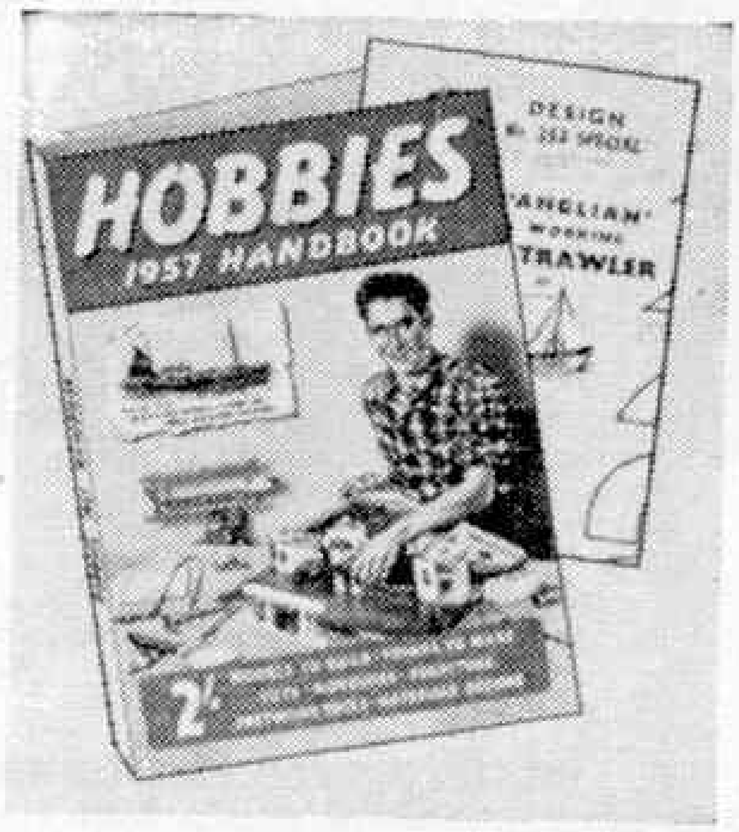

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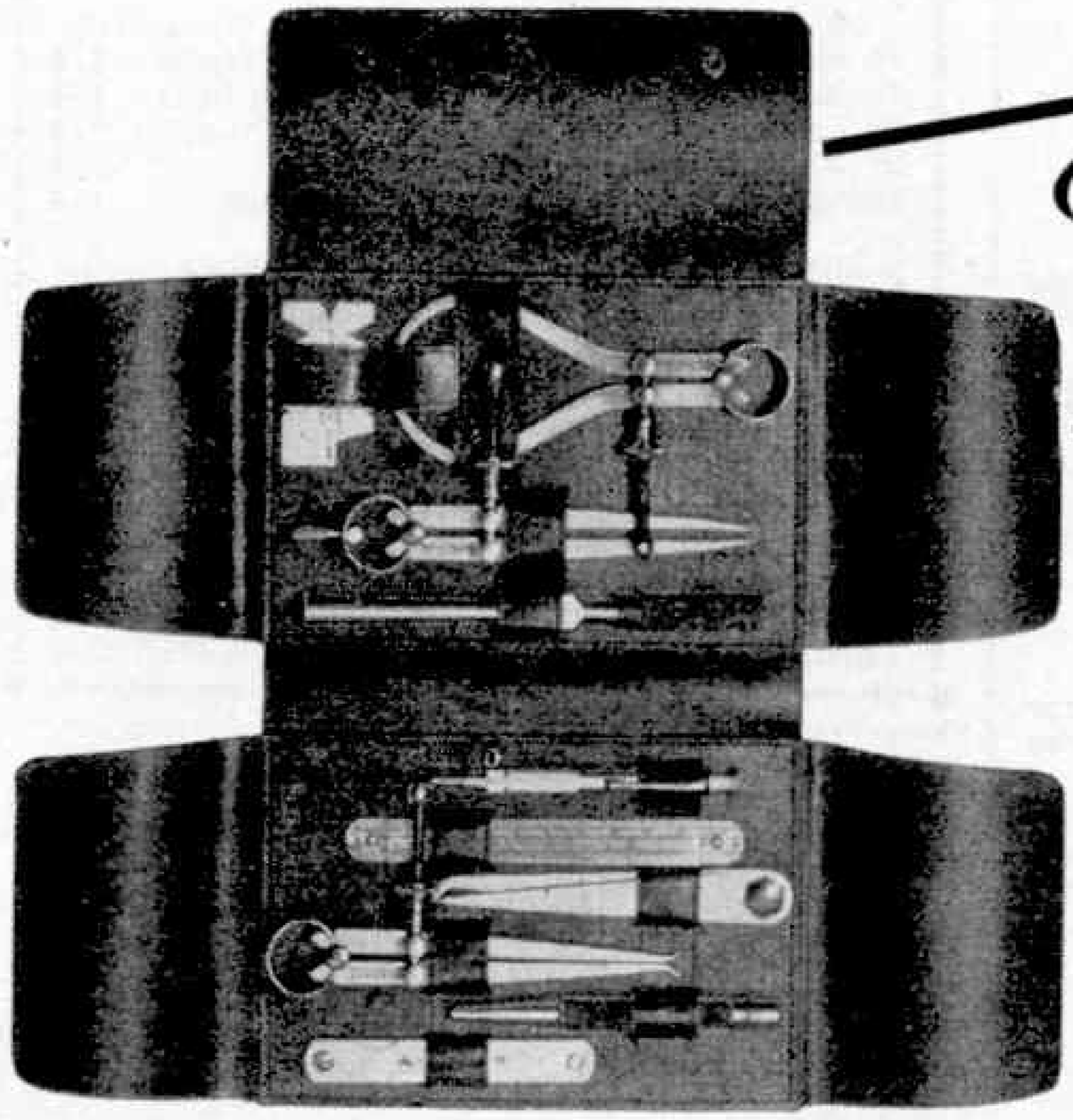

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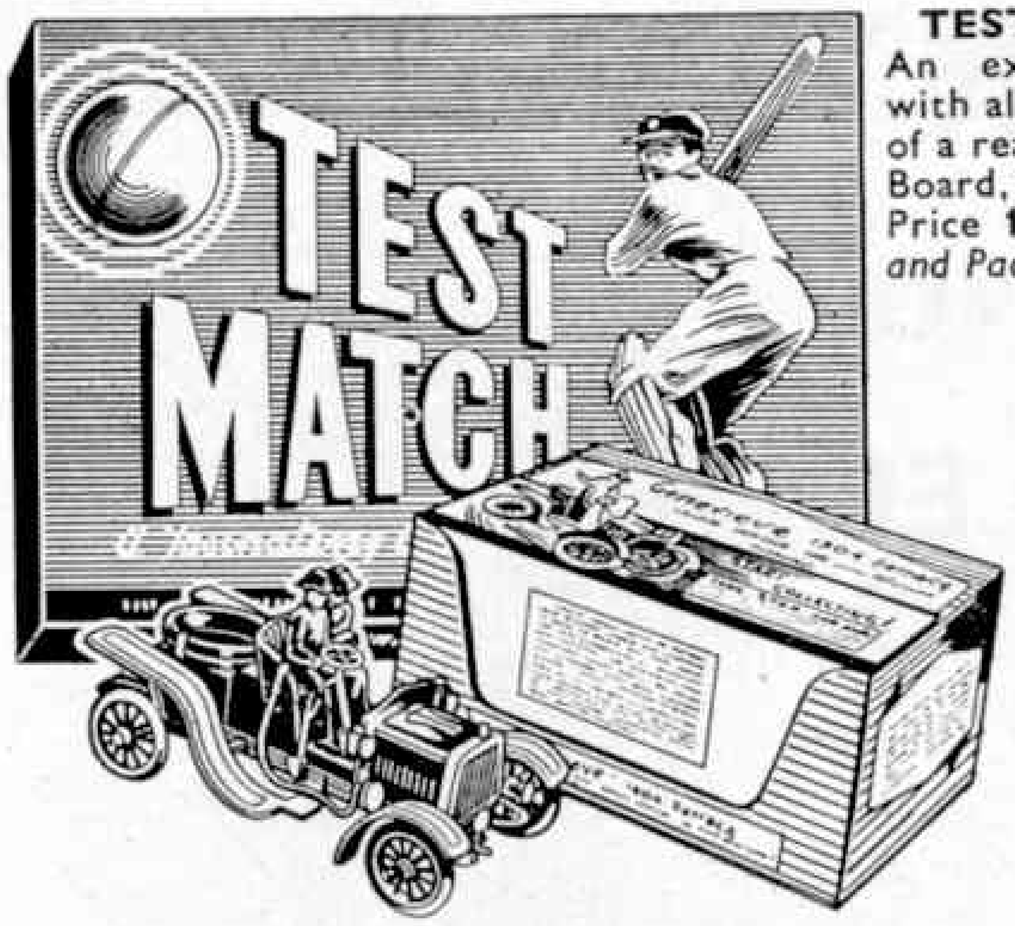

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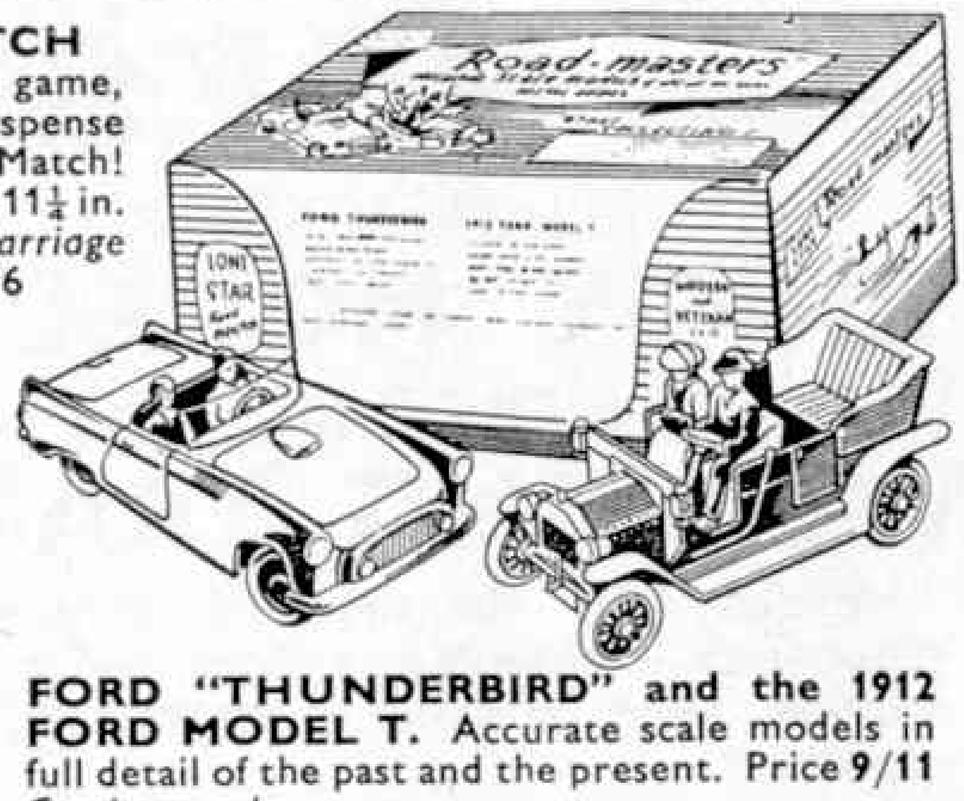

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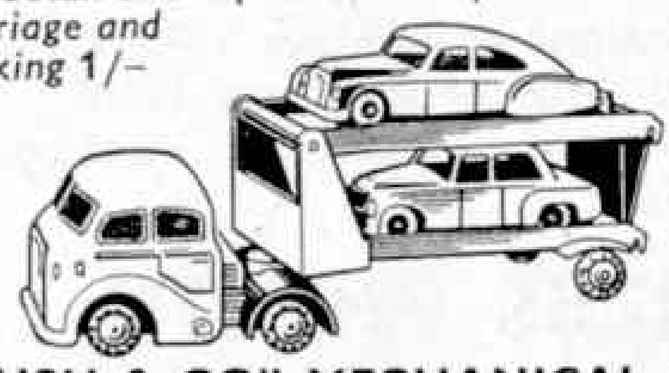

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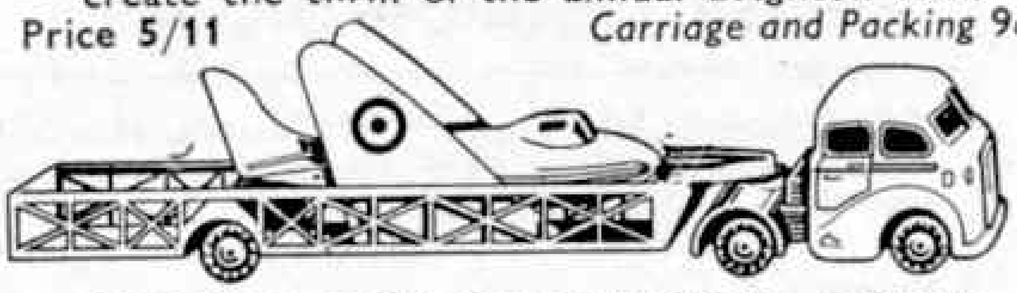

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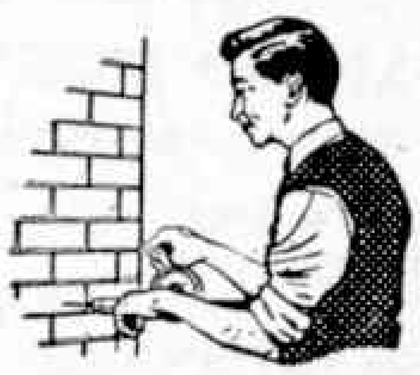

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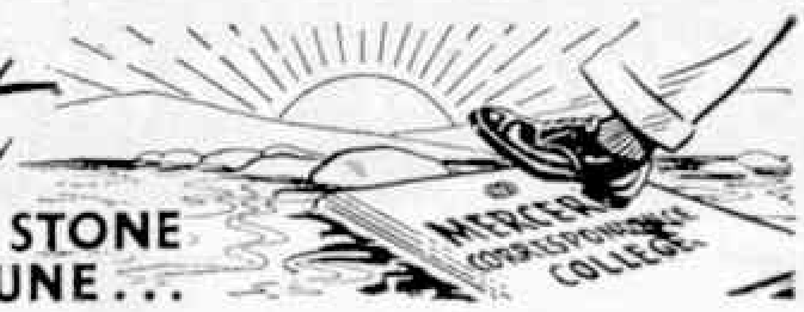

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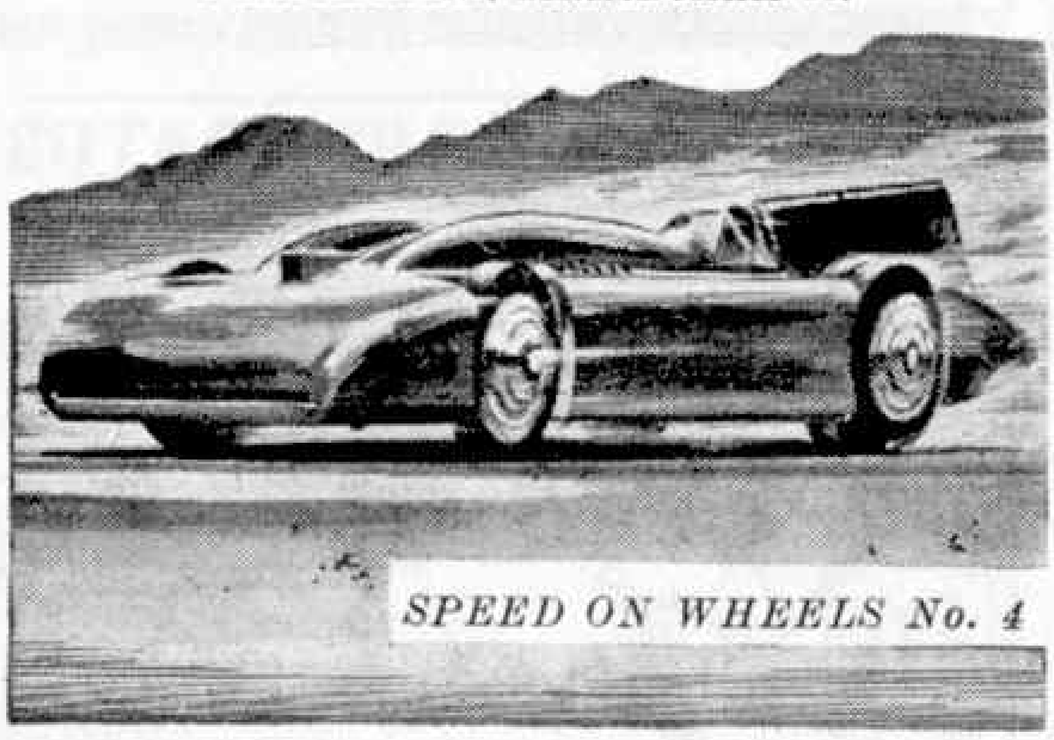

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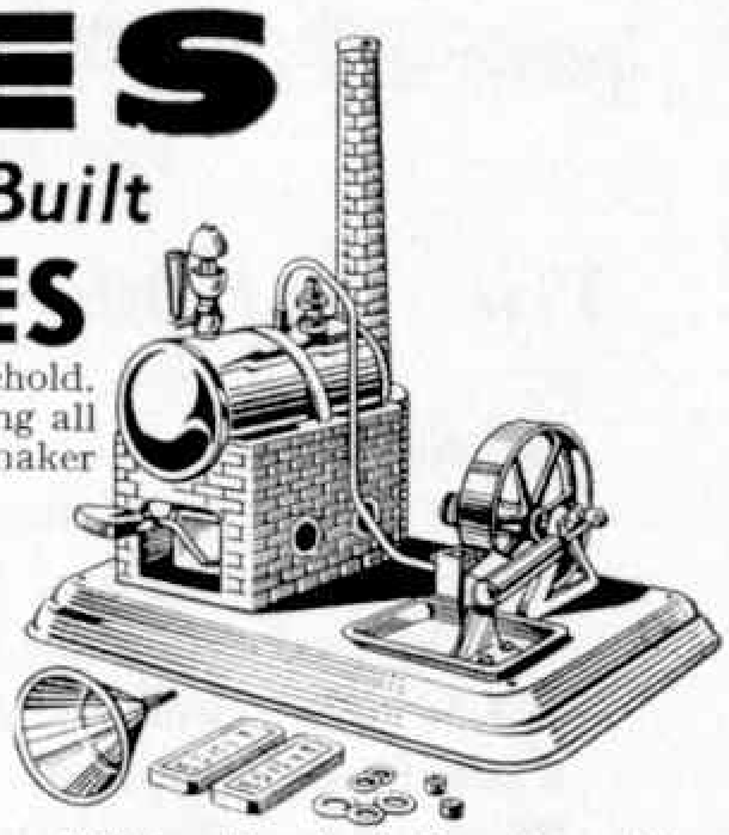

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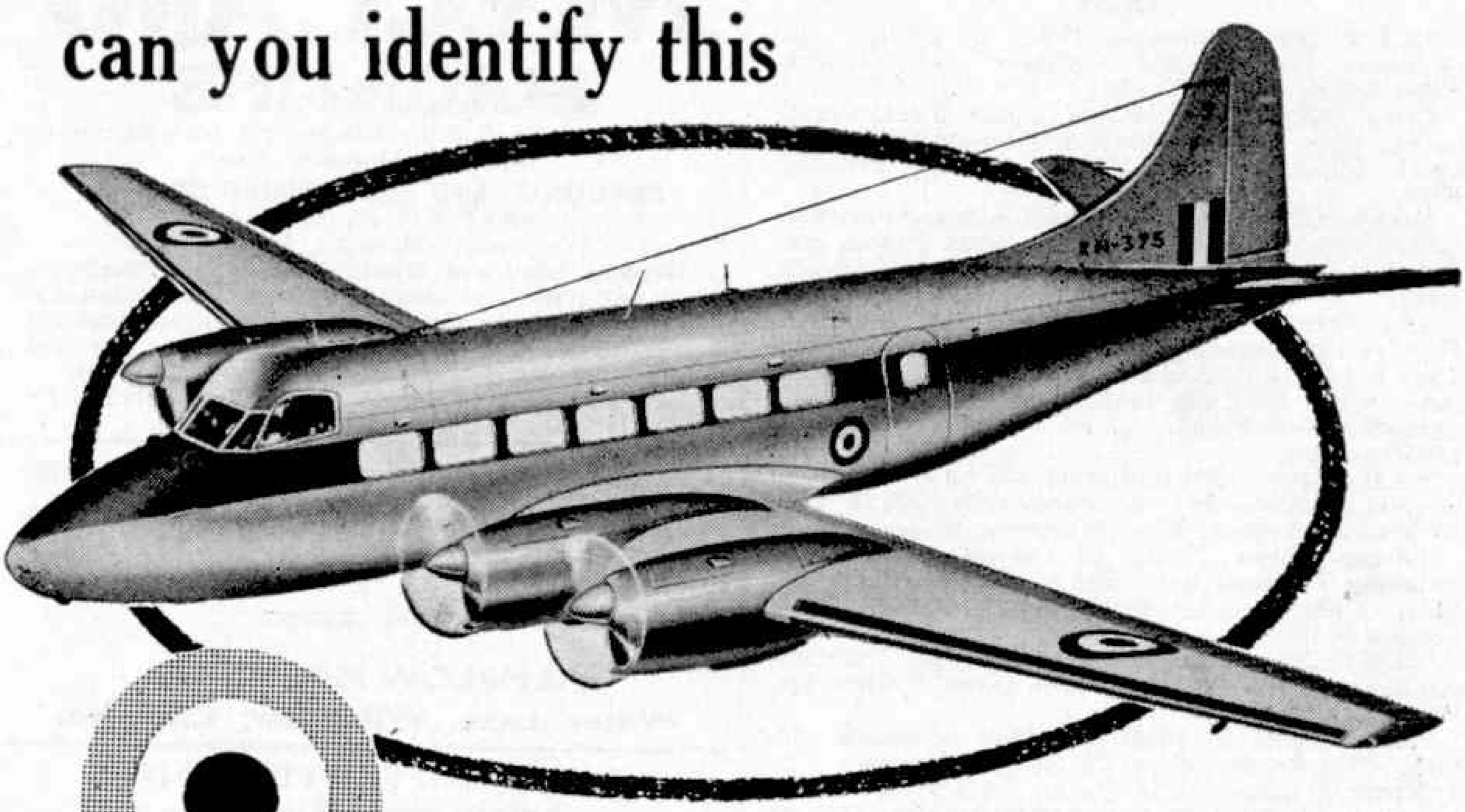

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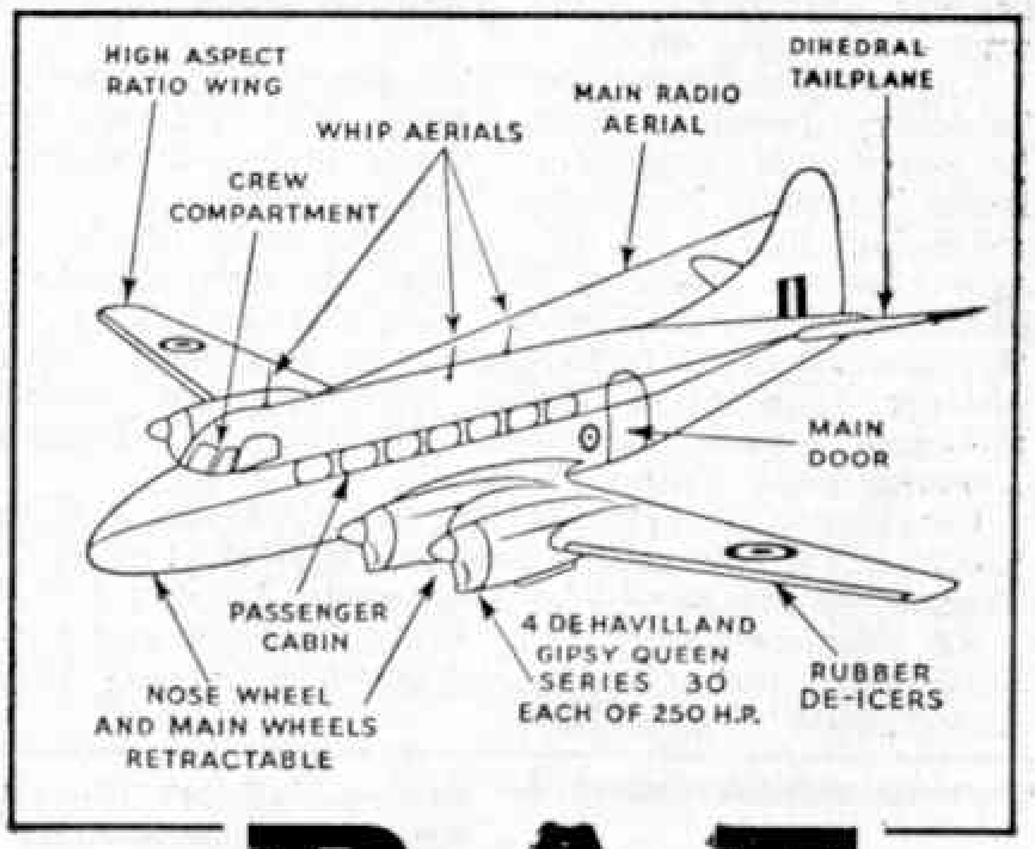

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(see also pages 488 and 490)

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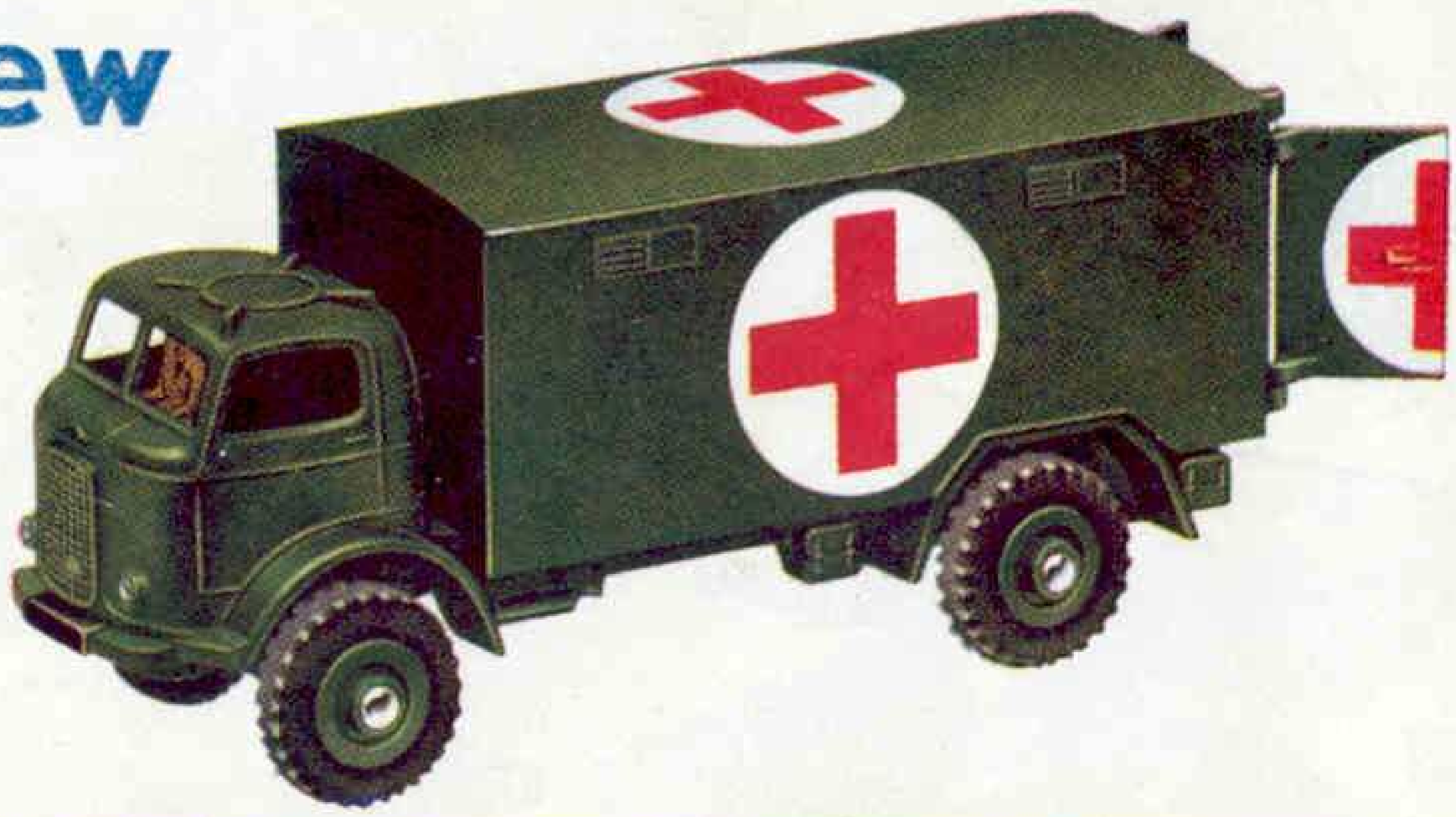

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MODEL OF THE MONTH

THREAD TWISTING AND KNOPPING MACHINE

Illustrated in the September 1956 issue of the "Meccano Magazine."

An E20R(S) Electric Motor is required to drive this model

Start building the model by making the main framework, using four 12½", three 7½", three 5½" and a 9½" Angle Girder, and one 5½" Strip. The 9½" Angle Girder is indicated at 1 and one of the 7½" Angle Girders is marked 2. Each lower corner of the framework is braced by a 1½" Corner Bracket. Two 5½" Strips 3 and 4 are fixed to the Girders 1 and 2 and a Double Bent Strip is bolted to the Strip 4 to form a bearing for an 8" Rod 5. Two Girder Brackets 6 and 7 are fastened to the Strips 3 and 4 and are connected by a 4½" x ½" Double Angle Strip.

A 1½" Rod 9 is mounted in the Strip 4 and the Double Angle Strip and carries a 2" Pulley and a Single Throw Eccentric 10. An 8" Rod 11 supported in Girder Brackets 6 and 7 is fitted with a Worm 12, a Ratchet Wheel 13 and a Collar 14. Collar 14 is loose on the Rod but is located between two fixed Collars, and it is connected to the Eccentric by a 2" Strip.

A 2½" Strip is pivoted at one end of Rod 11 between the Ratchet 13 and a Collar, and a Pawl mounted on a Pivot Bolt fixed in the Strip engages the teeth of the Ratchet. A ½" Pulley 15 bolted to the free end of the Strip forms a weight that keeps the Strip in contact with a 2½" Curved Strip attached to Girder 2 by an Angle Bracket. As Rod 11 is slid to and fro by the Eccentric the 2½" Strip is raised by the Curved Strip and the Pawl rotates the Ratchet and the Rod 11. A 2½" Stepped Curved Strip bolted to the lower end of the Curved Strip acts as a stop that limits the movement of the 2½" Strip and its Pawl.

Fix two 1" x ½" Angle Brackets 17 to the 12½" Angle Girder 18 and bolt two 1" Corner Brackets to the horizontal flange of the Angle Girder 19. The Angle Brackets and the Corner Brackets form bearings for Rods 20 and 21, which are held in place by Collars. Two 3½" Rack Strips, each fitted with two Angle Brackets, are connected by a 4½" x ½" Double Angle Strip 16, and the Angle Brackets are arranged to slide freely on Rods 20 and 21. An 8" Rod 22 is mounted in Girder 2 and in an Angle Bracket bolted to a 7½" Strip 25. The Rod carries three ½" Pinions, two of which engage the Rack Strips while the third meshes with the Worm 12.

Two Flanged Brackets 23 and 24 are bolted to the Girder 2 and the Strip 25, and are connected by a 7½" Strip supported by Angle Brackets. Two 8" Rods are held in position in the Flanged Brackets by Collars. A 7½" Angle Girder 26 and a 7½" Strip 27 are fixed to 1" x 1" Angle Brackets bolted to Girder 2 and the Strip 25.

A 5½" x ½" Double Angle Strip 28 is fixed between the Strip 25 and a 9½" Strip 29 and an 8" Rod 5 is mounted in the Double Angle Strip and in the Strip 4. Rod 5 carries a 60-tooth Gear 40 and two 2" Pulleys. The spindles 30 are 3" Rods fitted with ½" Pulleys, and each Rod is supported in the Girder 26 and the Strip 27 and is held in place by a Collar fitted with a 7/64" Grub Screw. The ½" Pulleys and the 2" Pulleys on Rod 5 are connected by Driving Bands.

Two Fishplates fixed to the Double Angle Strip 16 are arranged with their elongated holes over the spindles 30. A 1½" Pulley, fitted with an Angle Bracket that supports a vertical 1½" Strip, is placed loosely on each of the spindles so that it rests on the Fishplate, and a ¾" Flanged Wheel that supports a Sleeve Piece is fixed on the spindle. A short length of elastic or Spring Cord is attached at each end to the Double Angle Strip 16 and is placed round the grooves

of the 1½" Pulleys to provide a light braking effect.

A 1" Corner Bracket 32, extended upward by a 2" Slotted Strip, and a 1½" Angle Girder 32a, are fixed to a 5½" Angle Girder 31. A Flat Trunnion is bolted to Girder 32a and is extended upward by a 2" Slotted Strip, and a similar assembly is attached to Angle Girder 33, together with a 2" Slotted Strip in line with the Corner Bracket 32. Two 2" Slotted Strips 34 are attached to the Girders 31 and 33 by Angle Brackets and these support a 7½" Strip 35.

An 8" Rod 36 is placed in two of the bearing assemblies described above and is held in place by Collars. This Rod carries two Couplings covered with short pieces of ⅜" diameter rubber tubing. At one end the Rod 36 carries a 1" Sprocket, while at the other end a Coupling supports a 1" Rod on which a 1" Pulley is fixed. This Pulley is connected to the 2" Pulley on Rod 9 by a Driving Band. An 8" Rod 37 is mounted in the slotted holes in the bearings, and is pressed downward by two Compression Springs, each of which is passed over a ¾" Bolt. The Bolt is supported in a 1" x ½" Angle Bracket bolted to one of the 2" Slotted Strips, and is fixed by a nut in a Collar on Rod 37, leaving the Collar loose on the Rod. Rod 37 carries two Couplings covered with rubber tubing, and is held in place by Collars. This arrangement provides rollers for two of the threads used in the machine, and a similar set of rollers for the remaining two threads is mounted in the front pair of Slotted Strips.

Two 7½" Flat Girders are bolted together and are connected by Obtuse Angle Brackets to the Strip 29 and the Girder 1. Four 1⅛" Bolts fixed by nuts in the Flat Girders form spindles for the bobbins, which are Sleeve Pieces held in ¾" Flanged Wheels.

A 5½" x 2½" Flat Plate is fixed between the lower 12½" Angle Girders of the framework two holes from one end, and an E20R(S) Electric Motor is bolted to the Flat Plate. A 7/16" Pinion on the Motor armature shaft drives a 60-tooth Gear 39 on a 4½" Rod, which is mounted in the Motor side-plates. This Rod carries a ¾" Pinion, and a 7/16" Pinion that engages the 60-tooth Gear 40. The ¾" Pinion drives a 50-tooth Gear on a Rod 41, which is mounted in the upper corner holes of the Motor side-plates and carries a ¾" Sprocket. This Sprocket is connected by Chain to a 2" Sprocket 42 fixed on a Rod 43. Rod 43 is mounted in 5½" Strips fixed across the framework and it is fitted with a 1" Sprocket 44 and a Worm 45. Sprocket 44 drives a 1½" Sprocket 46 on a Rod 47, which carries also a ½" and a ¾" Pinion and a Bush Wheel D fitted with two Set Screws placed in adjacent holes and held by nuts.

Two 6½" Rods 48 and 49 are each fitted with a 57-tooth Gear, a 50-tooth Gear, a 1" Sprocket, and a Bush Wheel with eight Set Screws held in its holes by nuts. On the outer end of each Rod a Collar is held loosely between two fixed Collars, and bolts passed through holes in a 5½" Strip 51 are fixed in the loose Collars by nuts. Strip 51 pivots on a Bolt lock-nutted in a 1" x 1" Angle Bracket bolted to the framework, and a ½" x ½" Angle Bracket lock-nutted to the end of Strip 51 is lock-nutted also to a 5½" Strip 52. Strip 52 is bolted to a Triple Throw Eccentric, which is fixed in its ¾" throw position on a 6½" Rod 53. The Rod 53 is mounted across the framework and a ½" Pinion on it is driven by Worm 45. The 1" Sprockets on Rods 48 and 49 are connected by Chain to the Sprockets of the Roller assembly.

The Motor switch arm is extended by a 3½" Rod fitted with a Collar that is screwed on to a Bolt passed through the upper arm of the switch. Flexible and Flat Plates of various sizes are used to enclose the Motor and the gear-box.

To set up the model wind fine darning wool (preferably in two colours) on each of the four bobbins. Each length of wool from the two rear bobbins is passed under Strip 35, through a hole in a 7½" Angle

Girder 38, between the front rollers and over the front one of the two Rods held in the Flanged Brackets 23 and 24.

The wool from the two front bobbins is threaded through holes in the Strip 35, through the rear rollers and over the rear one of the two Rods in the Flanged Brackets. The front and rear threads are now connected in pairs, passed through one of the 1½" Strips attached to the 1½" Pulleys, and fastened to the appropriate Sleeve Piece.

The following hints on setting the gear-box will give some idea of the types of threads it is possible to make by altering the gearing of the machine.

No. 1

Light and dark twist, light "knop", light and dark twist, dark knop. With the Triple Throw Eccentric in operation, set ¾" Pinion A so that it engages alternately with the Gear Wheels B and C. The Gears should remain in mesh as long as possible. The term "Knop" refers to a thicker section in a length of thread made by twisting a small bunch of one thread round the other.

No. 2

Light and dark twist, single colour "knop". Triple Throw Eccentric working. Set Gears so that Pinion A is in constant mesh with Gear B and meshes intermittently with Gear C.

No. 3

Alternate solid colours. Disconnect Triple Throw Eccentric. The Set Screws in Bush Wheel D alternately drive the Bush Wheels E and F.

No. 4

Light and dark twist, one colour. Disconnect Triple Throw Eccentric. Bush Wheel D drives Bush Wheel E and Pinion A engages Gear C.

No. 5

All twist. Pinion A engages both the Gears B and C. For a finer twist use the ½" Pinions and the 57-tooth Gears.

Parts Required:- 6 of No. 1b; 6 of No. 2; 1 of No. 2a; 1 of No. 5; 1 of No. 6; 2 of No. 6a; 4 of No. 8; 1 of No. 8a; 5 of No. 8b; 4 of No. 9; 2 of No. 9f; 2 of No. 10; 13 of No. 12; 5 of No. 12a; 6 of No. 12b; 2 of No. 12c; 9 of No. 13a; 7 of No. 14; 1 of No. 15a; 4 of No. 16; 1 of No. 18a; 1 of No. 18b; 3 of No. 20a; 6 of No. 20b; 2 of No. 21; 1 of No. 22; 1 of No. 23; 3 of No. 23a; 3 of No. 24; 2 of No. 25; 5 of No. 26; 2 of No. 26c; 3 of No. 27; 2 of No. 27a; 2 of No. 27d; 2 of No. 32; 188 of No. 37a; 156 of No. 37b; 38 of No. 38; 1 of No. 45; 2 of No. 48c; 2 of No. 48d; 3 of No. 52a; 6 of No. 55a; 46 of No. 59; 9 of No. 63; 18 of No. 69; 24 of No. 69c; 1 of No. 70; 1 of No. 90; 1 of No. 90a; 1 of No. 94; 1 of No. 95; 1 of No. 95a; 5 of No. 96; 1 of No. 96a; 2 of No. 103k; 2 of No. 110; 4 of No. 111; 1 of No. 111a; 3 of No. 111c; 4 of No. 111d; 2 of No. 114; 4 of No. 120b; 1 of No. 125; 2 of No. 126a; 1 of No. 130; 1 of No. 130a; 4 of No. 133; 3 of No. 133a; 1 of No. 136; 1 of No. 139; 1 of No. 139a; 1 of No. 147; 1 of No. 148; 2 of No. 161; 6 of No. 163; 2 of No. 186b; 1 of No. 186d; 2 of No. 189; 4 of No. 192;